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John William Pole 78018

THE

ART of FARRIERY

BOTH IN

THEORY and PRACTICE

Containing the

CAUSES, SYMPTOMS, and CURE of all DISEASES incident to HORSES.

WITH

ANATOMICAL DESCRIPTIONS,
illuſtrated with CUTS,

For the better Explaining

The STRUCTURE, and accounting for the VARIOUS DISORDERS of theſe uſeful ANIMALS.

AS ALSO

Many Rules relating to the Choice and Management of HORSES of all Kinds, and uſeful Directions how to avoid being impoſed upon by JOCKIES.

Wherein ſome egregious Errors of FORMER WRITERS are occaſionally pointed out.

By Mr. JOHN REEVES,
Farrier at RINGWOOD, Hants.

The whole Reviſed, Corrected, and Enlarged by a PHYSICIAN.

To which is added,

A new Method of curing a STRAIN in the BACK SINEWS, and the ANATOMY of a HORSE'S LEG, with ſome Obſervations on SHOEING,

Alſo an Appendix, containing ſome neceſſary Obſervations on the late epidemical Diſtemper among Horſes, and a Method of Cure.

By an EMINENT SURGEON.

The THIRD EDITION.

LONDON:
Printed for CARNAN and NEWBERY, at N°. 65, in St. Paul's Church-Yard; STANLEY CROWDER, in Pater-Noſter-Row; and B. COLLINS, in SALISBURY. MDCCLXXI.

WELLCOME
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TO

HENRY COMPTON, Esq;

OF

BISTERN, HANTS.

SIR,

YOU are entitled, by the strongest claim, to my most grateful acknowledgments, and to the honest labours and studies of my life; since you have not only encouraged me, by your generous services, but enabled me by your judgment to pursue them with success.

The following Treatise is principally a collection of such Receipts and Observations as I have found, by experience,

to be moſt effectual in the cure of diſeaſes in Horſes, and which I have uſed with the greateſt ſucceſs; and, by means of this publication, I have ſome reaſon to hope that my labours, which have hitherto been confined to my friends in this neighbourhood, will be more generally extended, and become more ſerviceable to mankind.

Some apology ſhould be made for offering you a work ſo unworthy your protection; and indeed, I ſhould not have preſumed to requeſt your encouragement of this performance, was I not well aſſured that your great goodneſs and condeſcenſion would forgive what might be impertinent in me to aſk; and that any ſubject, however treated, if well and honeſtly intended, would not be overlooked, or deſpiſed by thoſe

who

who are fond of improvements, and are known to encourage every degree of art and induſtry.

Theſe conſiderations induced me to prefix your name to this performance, which I moſt humbly ſubmit to your known candour and judgment. Your acceptance of this work, will incline the world to give it a more favourable reception, than I could otherwiſe expect; and induce the public to think it has ſome little ſhare of merit, beſides that of a truly honeſt intention.

The uſual ſtile of a Dedication would ill ſuit one who cannot do juſtice to the character he would draw. Decency, therefore, as well as inability, hinders me from ſaying any thing on the ſubject of your perſonal worth, in the language

of

of my heart, but duty obliges me to make this publick acknowledgment (which I do with the greateſt thankfulneſs and gratitude) of the many favours you have ſo generouſly conferr'd on,

SIR,

Your moſt obliged, and

Dutiful Servant,

JOHN REEVES.

PREFACE.

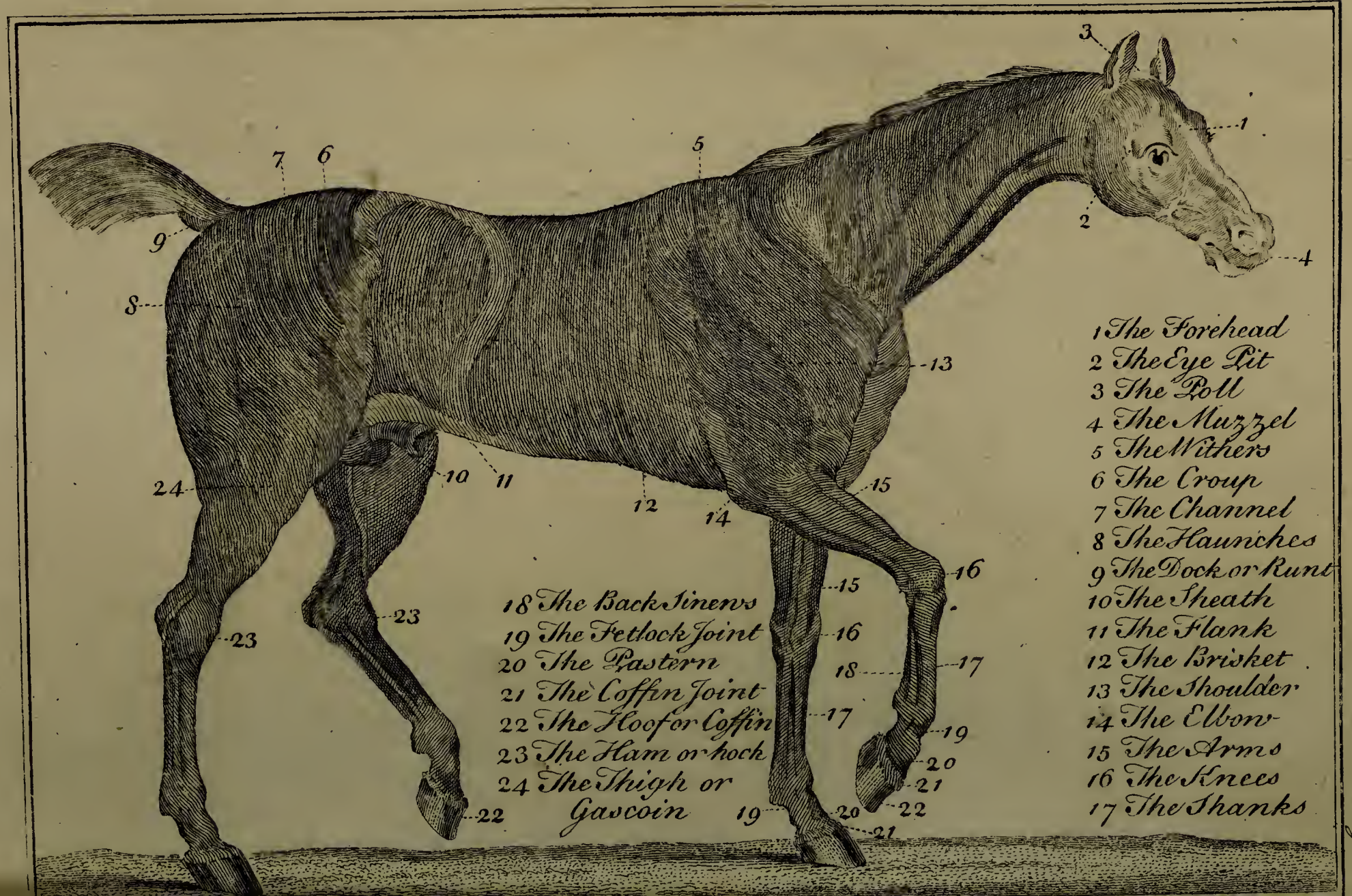
THE author of the following ſheets, having been many years in the practice of Farriery, and acquired reputation by his ſucceſs in curing the various Diſeaſes of Horſes, ſeveral gentlemen in the neighbourhood ſolicited him to publiſh his method of cure; and in order to engage him in the undertaking, a phyſician of eminence offered to reviſe his copy, and prepare it for the preſs. Theſe (with a conſideration of the benefit mankind might receive from his labours) were the motives which induced him to commence author, and to undertake a taſk that people in his ſphere of life may be perhaps thought little able to perform. Let that, however, be determined by the work itſelf, and by the benefit mankind may hereafter receive, by adhering to the precepts and medicines here recommended.

His friend the phyſician has not only performed his promiſe, but greatly exceeded it, by adding ſuch a juſt theory of Farriery, as will probably throw great light on the art, and lead men to a more rational practice: he has candidly

didly, though at the ſame time very tenderly, pointed out the errors of other writers on this ſubject, and has alſo explained the operations of ſome of the medicines, and animadverted on the doſes of others, and the nature and quality of the drugs.

Both our author and his friend have been intent on eſtabliſhing ſuch a ſyſtem of Farriery, as might in all reſpects be depended on. They have excluded therefore ſuch conjectures as are the children of fancy; all their precepts and preſcriptions being founded on practice and experience.

THE


1 The Forehead
2 The Eye Pit
3 The Poll
4 The Muzzel
5 The Withers
6 The Croup
7 The Channel
8 The Haunches
9 The Dock or Runt
10 The Sheath
11 The Flank
12 The Brisket
13 The Shoulder
14 The Elbow
15 The Arms
16 The Knees
17 The Shanks
18 The Back Sinews
19 The Fetlock Joint
20 The Pastern
21 The Coffin Joint
22 The Hoof or Coffin
23 The Ham or hock
24 The Thigh or Gascoin

THE ART of FARRIERY, &c.

Of the EXTERNAL PARTS *of a* HORSE, *and their* NAMES.

THE first thing that offers itself to our view, is the *coat*, which is called the *hair*: this has different denominations in several parts of the body. The foretop, is the *topping*, or *tuke*: the hairs on the under lip, are the *beard*: those which grow along the upper part of the neck, are called the *mane*: the part that is most arched, the *crest*; and when that sinks, a horse is said to be crest-fallen: the tuft of hair which grows on the lower part of the leg behind, above the heel, is termed the *feet-lock*, or *fetlock*: the hair that grows round over the top of the hoof, is named the *crown*, or *crowt*, or *crownet*: the hair on the eyelids is the *brills*.

The usual term by which the body of a horse is distinguished, is the *carcase*: thus, a horse with a large body, is said to have a *large carcase*; when the body is compact and well made, he is said to have a *good carcase*. The forehead is often called the *brow*. The two hollows above the eyes, which are most remarkable in old horses, are termed the *eye-pits*. The mark which frequently runs down the face, is the *rache*: and the white spot in the forehead, the *star*. The back part of the head, where it joins to the neck, is the *poll*: and the juncture of the head and neck, the *onset*, or *setting on of the head*. The lips, with the tip of the nose, form the *muzzle*. The place on the inside of

the mouth where the tongue lies, is the *charnet*. The fleſhy rows that run acroſs the upper part of the mouth, and are very remarkable in young horſes, are called the *bars*. The top of the ſhoulder-blades, and higheſt part of the ſpine, at the ſetting on of the neck, is the *withers*; and from the top of this a horſe is meaſured to know his ſize. From the withers to the hind part of the back, are the *reins*. Next the reins are the *loins*: tho' ſome call the whole extent, from the withers to the *croup*, the reins. The extremity of the reins, above the hips, to the tail, is called the *croup*. The part where the crupper lies is the *channel*; and the tail is the *dock* or *runt*. The ſinking of the back, if any, is named the *ſway*.

The hinder part of the belly next the genitals, is called the *flank*, which reaches from the ſmall ribs to the haunches. The looſe ſkin which covers the yard, is the *ſheath*. The *belly* reaches from the briſket to the ſheath. The point from the withers to the top joint of the thigh, incloſing the whole breaſt on both ſides, is called the *ſhoulder*. The *fore-legs* or *arms* begin from the ſhoulder; and the hind part pointing towards the briſket, is the *elbow*. The middle joint is the *knee*, to which the fore leg or arm reaches. The extent from the knee to the paſtern, is called the *ſhank*, and the ſtrong tendon behind the ſhank, which is inſerted into the heel, is termed the *back ſinew*. The place where the ſhank joins the paſtern, is diſtinguiſhed by the *paſtern* or *fetlock joint*. The *paſtern* reaches from the lower part of this joint to the foot, and has a joint in the middle to facilitate the motion of the foot, which diſtinguiſhes it into two parts, the *great paſtern*, next the ſhank, and the *leſſer*, next the foot. The joining of this laſt with the foot, is called the *coffin joint*.

The *hoof* is by ſome called the *horn*, but moſt commonly the *coffin*, becauſe it encloſes the bone of the foot. The tender part of the hoof next the heel, has the name of the *frush*; and the ball of the foot, the *frog*.

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Tho' ſome give the ſame denomination to both; and the fruſh or frog riſes from the middle of the foot, and reaches to the heel. The *ſoal* is that horny part which covers the reſt of the bottom of the foot, and adheres to the verge of the hoof, where nails are driven when a horſe is ſhod. The ſides meeting on the heel, are called the *quarters*.

The *haunches* begin at the two bones of the back part of a horſe, which incloſe the loins, and deſcend to the *ham* or *hock*, or *hough*. The *ſtifle* is the *knee-pan* of a horſe, ſeated in the middle joint of the thigh; and is outwardly that part which ſets out from the thigh towards the belly. The *thigh* or *gaſcoin* begins at the ſtifle, and reaches to the bending of the ham or hock. The *ham* or *hock* is the bending of the hind leg, and the round knob behind is called the *heel of the hock*, in which the great maſter ſinew is inſerted. The ſmall of the hind leg has the name of the *inſtep*. The paſterns and feet are diſtinguiſhed in the ſame manner as in the fore legs, and need no other deſcription. That ſide of a horſe which we approach in order to mount him, is called the *near-ſide*, and the other the *off-ſide*. Hence come the terms of *near-foot* and *off-foot*, the *near-eye* and the *off-eye*, and ſo of the reſt.

The Method of determining with Certainty the AGE *of a* HORSE.

THE age of a horſe may be determined in various manners; and this is a circumſtance that ought to be well conſidered, that you may not be deceived in the purchaſe of a horſe, not only becauſe a young horſe is more ſerviceable than one that is old, and is much more fit for any kind of uſe; but becauſe it is neceſſary to adapt the remedies to his age; for

what is proper for a young horſe, is not always ſuitable to one advanced in years.

This knowledge is principally from the teeth. Now the firſt teeth that appear, are four; two above, and two below, which are called the foal-teeth; which may be readily diſtinguiſhed from others by their whiteneſs. There are others which come out afterwards, till they are twelve in number; that is, ſix above, and ſix below. When a colt is between two years and a half and three years old, he caſts four of theſe teeth, two above, and two below. Theſe are called nippers or gatherers, and are much ſtronger and larger than the foal-teeth. With theſe he nips off the graſs, and pulls the hay from the rack. When theſe are compleat, a horſe is three years old; ſome ſay three years and a half.

When he is about four, he caſts again two above, and two below; one on each ſide the nippers, or middle teeth. So that now he has no foal-teeth remaining, but the corner teeth; and hence you may judge he is about four years old. The tuſks appear next after theſe, and ſometimes before; but do not ſucceed the caſting of teeth as the former. They are a little crooked, like the tuſks of other animals; and in young horſes they have a ſharp edge all round the top, and on both ſides, the inſide being a litule hollow. Thoſe below come out before thoſe in the upper jaw.

In the war time, when dealers want to ſell their horſes, they endeavour to make them ſeem older, by pulling out their foal-teeth before their time; in this caſe, the tuſks will not appear ſo ſoon after the others, as they would otherwiſe have done. Therefore, the ſureſt way to know the age at this time, is from the tuſks, which at four years old are very ſmall. When all the colt-teeth are caſt, and the corner teeth begin to ſhew themſelves, then the horſe comes five; or, rather, in the ſpring before he is five, the corner teeth

begin

begin to appear juſt equal with the gums, and are filled with fleſh in the middle.

From five, to five and a half, the corner teeth remain hollow within, and are not quite filled up till the horſe is ſix, and then the tooth becomes almoſt flat, and is equal, as well on the inſide as outſide; whereas before this time, that is, a little after five, it did not riſe above the gums more than the thickneſs of a crown piece. At five and a half they are about a quarter of an inch high, and when he is full ſix, near half an inch.

When a horſe is ſix years old, you need only examine the corner teeth and tuſks. The part of the corner teeth that had fleſh in at firſt, turns to a brownish ſpot, like the eye of a garden bean. At ſeven, the mark or ſpot becomes faint, and of a lighter colour; likewiſe the tooth becomes more even. At eight, it quite diſappears; tho' ſometimes there remains ſomewhat of it two or three years more; which may deceive the unſkilful. A horſe that feeds upon dry meat only, will appear more old than one that is often at graſs, becauſe the teeth are more worn away by the former.

The longer the corner teeth are, the older is the horſe; and, what is worthy notice, they are apt to be foul or turn yellow. When the mark is gone, if you touch the tuſk in the upper jaw with your finger, and find it worn away and equal with the palate, you may certainly judge the horſe is ten years old at leaſt. The ſame may be concluded when the tuſks in the lower jaw are long, round, blunt and foul.

When the flanks of a horſe are much ſunk, the feet broken and ſpoiled, the pace bad, and the eye-pits very hollow, you may certainly conclude the horſe is very old. His gums are likewiſe worn away, and leave the teeth long and naked, which are either yellow or brown. The bars of the mouth are lean, dry and ſmooth, with little or no riſing. Black horſes are apt

to grow grey over their eye-brows, and very often over a good part of the face. All horſes, when very old, ſink more or leſs in their backs, their joints grow ſtiff, and their knees and hocks bend, inſomuch that they are apt to trip and ſtumble in going down a hill or any ſmall deſcent.

Of the PROPERTIES *of a good* HORSE.

THERE is no man, tho' never ſo well verſed in the knowledge of a horſe, that is able to diſtinguiſh all their faults at the firſt view. Some things ſtand in need of examination more than once, otherwiſe there may be very eſſential miſtakes committed.

The thighs and legs ſhould be clean, and free from every kind of blemiſh. The knees ſhould be ſtraight, not bending: the ſhin and ſhank thin: the back-ſinews ſtrong, and well braced. The ſinews and the bone ſhould be evidently diſtinct, in ſuch a manner, as to make the legs appear thin and lathy, not full and round. The paſtern joints ſhould be free from diſorders of all kinds, never large and round, for then they may juſtly be ſuſpected. Nor muſt there be any ſwelling near the coronet. The hocks ſhould be lean and dry, not puffed up with wind; which you may know by laying your finger upon it, for the ſwelling will readily change its place.

With regard to the *hoof*, the coronet ſhould be equally thick, the horn ſhining and greyiſh. When the horn is white, it is a ſign of a bad foot, that will wear out in a ſhort time. A thin, weak foot, that is, when the horn is thin, is liable to be ſpoiled in ſhoeing, and by travelling hard on ſtony ground, by droughts in hot ſeaſons, and by too much moiſture in winter. The thinneſs of the horn will beſt appear when the ſhoe is taken off; for the verge all round

the

the ſoal will appear thin, and the horſe will wince at the leaſt touch of the pincers. But as this is generally not permitted, you may conclude the ſame when the ſhoe nails are driven high to take ſufficient hold. The heel and frog likewiſe often are very tender to the touch, and ſometimes one point of the heel will ſtand higher than the other.

A *ſtrong foot* has the fibres of the hoof very diſtinct, running in a ſtraight line from the coronet to the toe, like the grain of wood. Some ſuch feet will laſt very well, if care be taken to keep them moiſt and pliable: yet if they are neglected when the horſe travels much, eſpecially on ſtony grounds, or when he ſtands long in a hot, dry ſtable, they will be apt to go tender and lame, when there is no apparent defect in the foot.

This happens from the foot being bruiſed by the hardneſs of the hoof.

The greateſt inconvenience attending a hard ſtrong foot, is its being ſubject to refts and fiſſures, which cleave the hoof quite through, ſometimes from the coronet down to the bottom. Theſe clefts being for the moſt part in the quarter, ſeldom admit of any other remedy, than extirpating the whole piece that lies next the heel.

A *narrow heel* is likewiſe a defect; though ſome horſes feet are tolerably good when their heels are narrow, unleſs the foot is hot. When the heel is not above two fingers in breadth, the foot is bad. Both the feet ſhould be of an equal ſize, and not flat or without depth. But if ſuch a foot happens to be ſtrong, the hoof ſmooth, the ſoal firm, and the frog not decayed, rotten, or fleſhy, the horſe will then endure the roads tolerably well. But when it is like an oyſter, with many rings or wrinkles, at the ſame time that the ſoal is ſoft, and the frog fleſhy and ſpongy, it is a very great fault.

The heel ſhould neither be too high nor too low. A high heel cauſes a horſe to trip and ſtumble often,

and to go unſteadily. And low-heeled horſes, with very long, yielding paſterns, are very apt to have their heels worn quite away on a journey.

When the foot is too large in proportion to the reſt of the body, though good in other reſpects, ſuch a horſe, at beſt, will be weak and heavy, as well as unapt for briſk, vigorous actions.

The hind legs ſhould be free from the ſame defects as the fore legs.

The *head* of a horſe ſhould be ſmall, at leaſt not too long nor too large, rather lean than fleſhy. The ears ſhould be ſmall, erect, thin, ſprightly, and pointed. His forehead or brow ſhould be neither too broad nor too flat, with a ſtar or ſnip. His noſe ſhould riſe a little, and be well turned: his noſtrils wide, and then he will breathe more freely. His muzzle ſhould be ſmall, and his mouth ſhould neither be too deep nor too ſhallow. His jaws ſhould be thin and ſufficiently wide, not approaching too near together at the throat, nor too high upwards towards the onſet, that he may have ſufficient room to carry his head in an eaſy, graceful poſture. The eyes ſhould be of a middle ſize, bright, lively, and full of fire. The eyes are the index of the mind, and diſcover, in a great meaſure, his inclination, paſſions, and indiſpoſitions.

The tongue ſhould be ſmall, that it may not be too much preſſed by the bit. The *bars* ſhould be ſharp, ridged, and lean, and then he will be more eaſily governed by the bridle. It is a good ſign when a horſe has his mouth full of white froth; for it ſhews that he will not eaſily be overheated.

The *neck* ſhould be arched towards the middle, riſing by a beautiful gradation out of his breaſt and ſhoulders, diminiſhing as it approaches towards the head; the muſcles ſhould be diſtinct, and not too full of fleſh. But this is no fault in mares, becauſe their necks are commonly too fine and ſlender. The hair of the mane

ſhould

ſhould be long, thin, and fine; if it be a little frizzled, ſo much the better.

His *ſhoulders* ſhould be thin from the withers, and pretty long and well raiſed, with a gradual inlargement from thence downward, ſo as to render his boſom or breaſt neither too narrow nor too groſs. A thick ſhouldered horſe is not only diſagreeable to the rider, but he ſoon tires, and trips or ſtumbles every minute; eſpecially if he has a thick, large neck at the ſame time.

When the breaſts of horſes are ſo narrow, that their fore thighs almoſt touch, they are worth little; for they have a weak fore hand, and by croſſing their legs are apt to cut; likewiſe in galloping they are ſubject to fall. A horſe of a middle ſize ſhould have the diſtance of five or ſix inches between his fore-thighs. And when he ſtands ſtraight upon his limbs, there ſhould be leſs diſtance between his feet than between his thighs near the ſhoulders.

The body or carcaſe ſhould be of a middling ſize, in proportion to his bulk; for when it is too ſmall, the horſe is generally weak. His back ſhould ſink a little below the withers; but the other part ſhould never be too low, but always ſtraight, unleſs as juſt mentioned. In this caſe, the fore hand will riſe very well.

When the back of a horſe is higher behind than before, he is apt to be pinched in his ſhoulders, is very unſightly, and generally weak. Beſides, it renders the back-parts ſo heavy, that they generally have an aukward gait, and move ſlowly. A horſe ſhould be home-ribbed; but the ſhort ribs ſhould not approach too near the haunches, for then he will not have room to fetch his breath. Thoſe that are open ribbed, are of a lax texture, are looſe in the flanks like a greyhound, and conſequently weak. Beſides, they are narrow over the chine, have little or no belly, are not fit for a long journey, and will carry no great weight.

When

When a horſe's back is very ſhort in proportion to his bulk, and yet otherwiſe well limb'd, he will hold out well enough upon a journey; but he is ſlow, and never makes a good appearance. When he is tall at the ſame time, with very long legs, he is worth little. His flanks ſhould not be hollow, but ſmooth and full: likewiſe his hind parts, or uppermoſt haunches, ſhould not be higher than his ſhoulders: and when his back is a little arched behind the ſaddle, it is a ſign of ſtrength, and a fitneſs for hunting as well as travelling.

The wind ſhould never be overlooked in the choice of a horſe. When he is broken-winded, it muſt be after he is ſeven or eight years old, and may be eaſily known by his flanks, when he ſtands quiet in the ſtable; for he always pinches them in with a very ſlow motion, and then drops them ſuddenly. When he is very bad, he has a violent cough, and farts frequently, with a conſtant working of the fundament. His noſtrils likewiſe work as in a fever; and yet he has no great heat or much abatement in his appetite.

A *thick winded horſe* fetches his breath often, and ſometimes rattles and wheeſes. This may be always diſcovered by putting him to briſk exerciſe. This defect is ſometimes accidental, as when a horſe is foggy or foul fed, or is newly brought home from a rank paſture, or has had a cold that has injured his lungs. When it is natural, it may be owing to a narrow cheſt, or when he is ribbed home too cloſe.

I need ſay nothing of the *glanders* in this place, nor many other evident defects and diſeaſes, becauſe none but ignorant buyers can overlook theſe, when any ſuch horſes are offered to ſale.

The TEMPER of a horſe is a principal thing to be obſerved, but is not very readily known unleſs to ſuch as are greatly accuſtomed to their tricks. However, there are ſigns by which their diſpoſitions may be pretty well diſtinguiſhed; for a *vicious horſe* generally lays his ears cloſe to his poll, ſhews the whites of his eyes,

and

and looks ſullen and dogged. Some have a frowning look, and carry anger in their countenance, which may readily be diſcovered by thoſe who have had frequent opportunities of obſerving them. They ſeem to ſtand in a poſture of defence, holding up their heads very high, and advancing one of their hind legs forward, which they reſt on their toe; as it were preparing to kick the perſon that comes near them. When a horſe is very vicious, he pays no regard to the groom that feeds him, nor puts on a more pleaſant countenance.

However, ſome horſes that are tickliſh, will lay back their ears, but they have a pleaſant look with their eyes, and catch hold of the crib. Some do the ſame from a playful diſpoſition.

A horſe that is fearful, and apt to ſtart, often endangers the rider's neck. It is a diſpoſition ſeldom vanquiſhed till he is old and uſeleſs, or harraſſed by conſtant travelling, which renders all kinds of objects familiar. But this will be no abſolute ſecurity, if any unuſual ſight ſhould appear. This temper may readily be diſcovered by his crouching, creeping, and ſtarting.

A *hot, fretful horſe*, is never able to endure any fatigue, for he is ſoon ſpent, and unfit to perform his taſk. A long journey will deprive him of his fleſh, and make him appear like a jade, only fit for the dogs. Long reſt may reſtore him ſo as to be able to undergo another. But ſuch as theſe can be of no long duration; for they are liable to many accidents and diſeaſes. A horſe of this kind will diſcover his fretful temper as ſoon as he gets out of the ſtable, and will not leave it off till he has loſt his ſpirits.

The temper of a dull, heavy, ſluggiſh horſe is hard to be diſguiſed, whatever tricks may be made uſe of to put him in ſpirits. Some uſe ſharp ſpurs, others endeavour to rouſe him by the cracking of the whip, and others again place ſome prickly thing under his tail.

tail. But any of theſe only put him into a hurry, without concealing his natural diſpoſition, as a good judge will readily perceive. However, ſuch horſes as theſe will laſt long, and may be very uſeful for ſome ſort of work.

There are other horſes which may be called *crib-biters.* Theſe catch hold of the edge of the manger, ſuck in the air, and gulp it down till they are ſometimes ready to burſt. This vice is readily diſcovered, for he will do it openly in the ſtall. Likewiſe his fore-teeth will appear to be much worn; and if he has been long uſed to it, they will not meet in ſome places by the breadth of one's finger. Coach-horſes are much given to it, and can never be made to leave it off. Crib-biters are of little value, for they almoſt always look lean and jaded, with a ſtaring coat; they are unfit for labour, and ſubject to the gripes and other diſeaſes.

Upon the whole, it is not ſufficient that every ſingle part of a horſe, when taken to pieces, ſhould be well formed, beautiful, and free from blemiſh, but he ſhould make a good appearance when taken altogether, and every limb ſhould have a juſt ſymmetry and proportion with regard to all the reſt. When this is the caſe, little trifling defects are of no moment, eſpecially when a horſe's motions are eaſy and graceful, and all his paces ſprightly, juſt, and regular.

The *colours of horſes* are greatly diverſified; but the chief are the *bay*, the *cheſnut*, the *brown*, the *black*, the *dappled grey*, and the *ſorrel.* As for the white, it is not an original colour, but proceeds from the grey, which turns ſooneſt to a white the lighter it is; eſpecially if it has little or no dark mixture about the joints.

A *bright bay horſe* has commonly a reddiſh daſh; his mane and tail are black, with a dark or black liſt down his back. He has a pleaſant agreeable ſhining aſpect. A dark bay horſe has his knees and paſterns almoſt always black. And ſome ſorts are black from

their

their knees and hocks downward. Thoſe that have no liſt down their backs, are generally black over their reins, which changes gradually from dark to light, towards their belly and flanks. Bays in general are accounted a good colour, unleſs they meet with any bad accidents while they are very young.

The hairs of *cheſnut coloured horſes* are at the points of a pale brown, the middle is dark, and the roots of a light colour. The mixture is not very diſtinct and apparent to the eye; and many have their manes and tails very near the colour of their bodies, with but little white about their legs, and commonly no mark. Whereas the hair of the ſorrel is often compoſed of ſeveral colours intermixt, wherein the fox-colour is generally predominant, with a good deal of white about their legs and paſterns. Many have a large blaze, and others are quite bald all over the face, with manes and tails of a ſandy or flaxen colour. There are different degrees of both theſe colours. Some cheſnut horſes have manes and tails as light as the ſorrel, while the hair of their bodies is of a fallow colour, ſtained with a kind of a beautiful cheſnut.

The cheſnut horſe is generally preferable to the ſorrel, unleſs the former happens to be bald or party-coloured, or to have white legs. A ſorrel horſe that has much white about his limbs is apt to be more faulty in his feet, and of a more tender conſtitution, than thoſe that are of a more uniform colour.

Brown horſes are ſometimes very dark, and ſometimes more light, and have almoſt always black manes and tails. Their joints are often of a ruſty black. They are almoſt all of a lighter colour towards their bellies and flanks than elſewhere; and ſome are light about their muzzles. Thoſe of this colour that are dappled, are accounted much handſomer than the reſt.

Horſes of a ſhining black, that are well marked, not having too much white, are in high eſteem for their beauty. A ſtar or blaze, or white muzzle, or one or more

more feet tipt with white, are thought to be rather better than thoſe that are entirely black; as being generally leſs ſtubborn, and of a ſweeter temper. Black horſes that are browniſh on the flanks and hips, with brown muzzles, are called *black browns*, which are generally of a good conſtitution. When their muzzles are of a lighter colour, they are ſaid to be *mealy mouthed*. Thoſe that have a white circle round their eyelids, have their fundaments often white, and have the appellation of *pigeon-eyed*. Bays and cheſnuts are often more hardy than large black horſes of the Engliſh breed.

Of *greys*, the *dappled* are accounted the beſt. The *ſilver greys* make a beautiful appearance, and often prove good; the *iron greys* with light manes and tails, are not thought to be ſo hardy. All greys turn white in proceſs of time; but the light plain greys, and the pigeon-coloured greys, ſooner than others; and the dappled grey laſt. The *nutmeg-grey*, when the dappled parts incline to bay or cheſnut, are eſteemed good hardy horſes.

Roan horſes have a diverſity of colours mixt together; but the white is more predominant than the reſt. When there is a mixture of the bay or nutmeg, it renders them of an aſpect agreeable enough. Some of theſe roans look as if they were powdered; and ſome as if milk was thrown on their buttocks. Some ſeem to be ſprinkled with pot lamp black; and ſome as if their faces had been dipt in a bag of ſoot. They are generally hardy and fit for the road. Some are exceeding good.

Strawberry coloured horſes are ſomewhat like the roan, but moſtly reſemble the ſorrel. They are often marked with white on the face and legs, but not without a mixture of the roan. When the bay is blended with it, he ſeems to be tinctured with claret, and this is looked upon as a very high colour, but is not common. Some of this ſort turn out to be good horſes.

The

The *dun*, the *fallow*, and the *cream-coloured horſes* have a liſt down their backs, and their manes and tails are black. The liſt of the *dun* and *lead-colour* becomes lighter gradually, like the back of an eel; whence they are ſaid to be eel-backed. Dun horſes are very ſeldom choſen, and yet they may be very uſeful for country farmers. The *fallow* and the *cream-coloured horſes* are in higher eſteem, as well for beauty as uſe; eſpecially if their muzzles and joints are black, as well as their manes and tails; ſome have theſe laſt of a ſilver colour, without any abatement of their goodneſs. The fallow and the tawny duns are often ſhaded with a darker colour, or are faintly dappled, and when they are well matched, make a fine appearance as coach-horſes.

Some horſes are diſtinguiſhed by a peach-colour, the ſtarling, and the flea bitten: but theſe partake of the colours already mentioned, to which they may be referred. Some again are finely ſpotted like leopards or tygers, or deer, with gay colours, as yellow, red, *&c.* with black; on which account they are a great rarity, and are chiefly put into the hands of great men on that account. Others are ſo ſtrangely bedaubed with a diſagreeable variety of odd colours, that they are generally made drudges of, as being fit for nothing elſe.

The *marks* of a horſe are by ſome regarded in a ſuperſtitious manner, being ſuppoſed to be lucky or unlucky, or at leaſt to denote their good or bad qualities. But this has no foundation in experience. However, when a horſe is well marked he is certainly more beautiful, and has more ſprightlineſs and vivacity in his aſpect.

The moſt common mark is a *ſtar*. And when the white deſcends from thence pretty broad towards the noſe, it is called a *blaze*. When there is a ſmaller line proceeds from thence in the ſame manner, it is ſaid to be a *ſnip*; and when the greateſt part of the horſe's face

face is covered with white, he is said to be bald. A ſtar is never beautiful unleſs it be of a moderate ſize; nor is that face becoming which is all over white deſcending to the bottom of the cheeks. A ſnip ſhould always be ſtrait, for when it is awry, it is diſagreeable. When ſtars or blazes are fringed with black hairs, as in ſome of the browns, they look pretty enough; but then their faces ſoon grow grey, which gives them an old look. But it is otherwiſe with the greys and ſorrels, who generally have their ſtars and blazes fringed with their own colour.

The *marks on the feet and legs of horſes* generally correſpond with thoſe on the face. Bald horſes have generally much white on their legs, and they are often all white. Horſes with large blazes are commonly marked in the ſame manner. Theſe are not unbecoming: but a horſe with little or no mark on his face, looks diſagreeably with white legs, eſpecially when the white riſes higher than the fetlock. A bald-faced horſe, or one that has a blaze, with his feet intirely of another colour, is thought to be badly marked. And ſo is a horſe that has both his near feet white, as well as thoſe that have both the off-feet white, while the reſt are not marked at all. Some diſlike a horſe when the near-foot before is white, and the off-foot behind, and the contrary. According to the common opinion, thoſe are beſt marked who have the near-foot, or both feet behind white; or when the near-foot, or both feet before are white: eſpecially when the face has a radiated ſtar, or a ſmall blaze on his face.

When the white parts about the feet are indented with black, or any other colour towards the coronet, or when the coronet is ſpotted like ermine, the feet are looked upon to be good. When all the four legs are white, eſpecially if it riſes above the knee, or hocks, and when the paſterns and hoofs are white likewiſe, it gives the horſe an ugly appearance, inclining too much

to

to the pye-bald For which reaſon few gentlemen will chooſe to ride them.

Some horſes that have ſhort hair, and are finely coated, eſpecially thoſe that are ungelt, have a mark like a feather. Sometimes it is round, and ſometimes long and narrow, like a feather, or an ear of barley. The round is often on the forehead; ſometimes on the ſhoulders and briſket, looking like embroidery. When this mark is on the neck, it is placed immediately under the mane, and runs downwards towards the withers. When it is on both ſides the neck, ſo much the better. Sometimes they are on the thigh, running down towards the dock, and ſometimes down the fore-arm, or in other places. Feathers in general are almoſt always the ſign of the goodneſs of a horſe, and ſometimes making an exceeding beautiful appearance.

Of the ANATOMY *of a* HORSE.

THE body of a horſe, as well as that of all other animals, is divided into *ſolids* and *fluids*, which act upon each other. From this action, when it is reciprocal, and performed in a natural and due manner, the ſeveral functions are produced, without which, an animal cannot perform the various operations for which nature has appointed him.

Of the SOLIDS.

THE *ſolid parts* conſiſt of a maſs of various pipes and veſſels, which ſerve to contain the ſeveral fluids and liquors, which ſerve for ſeveral purpoſes, according to their diſtinct natures. All theſe veſſels have a general tendency to contrac-

tion, which brings their ſides nearer together, and diminiſhes their diameter. This quality of the veſſels is called elaſticity, which when of a proper ſtrength, that is, neither too high nor too weak, has a great influence in preſerving health, and keeping off diſeaſes.

However, all the veſſels are not of the ſame conſiſtence; for ſome are hard, as the *bones* and *cartilages*. Theſe ſerve to ſuſtain the other parts, and give a firmneſs and attitude to the body. The ſoft parts are *muſcles*, *ſkin*, *bowels*, &c. The ſolid parts are divided into the *ſimilar* and *ſimple*, and the *compound* or *organic*.

The *ſimilar parts* are the *fibres*, the *membranes*, the *bones*, the *ligaments*, the *muſcles*, the *tendons*, the *aponeuroſes*, the *glands*, the *blood-veſſels*, the *nerves*, and the *common teguments*.

The *fibres* are long ſlender threads of different kinds. Some are ſoft, flexible, and a little elaſtic or ſpringy. Theſe are hollow like pipes, or ſpungeous, and full of little cells, ſuch as the nervous and fleſhy fibres; others are more ſolid and flexible, with a ſtrong elaſticity or ſpring, ſuch as the membranous or cartilaginous; another ſort are hard and inflexible, as the fibres of the bones.

A *membrane* is a flexible web of fibres, croſſing each other in the ſame plane. Their fineneſs depends on that of the fibres, and their thickneſs on the number of their ſeveral planes. When theſe cover the veſſels, they are called *tunics* or *coats*. Their uſe is to line the principal parts of the body, to conſtitute veins and arteries, as well as to cover the bones.

The *bones* are the hardeſt parts of an animal body. The ſubſtance of the bone is a texture of ſolid fibres, differently diſpoſed according to the conformation of each bone. They are compoſed of three ſubſtances; the one is *compact*, as the external part of the bone; the other is *cellular*, as the extremities of the

the long bones; the third is *reticular*, and is formed of ſlender threads, which proceed from and croſs the ſpungeous ſubſtances. In the flat bones, as the ſkull, there is no reticular ſubſtance.

The oily ſubſtance in the cells of theſe bones is called *marrow*, as well as that in the cavities of the long bones.

The *cartilages* or *griſtles* are white, ſmooth, poliſhed, ſupple, elaſtic ſubſtances, without cavities and marrow. They are harder than the other parts, but not ſo hard as bones. They cover the extremities of the bones at the joints, ſerving to unite them more cloſely, and to abate the friction. All the cartilages of the joints are covered with a membrane called *perichondrum*.

The *ligaments* are white, fibrous, cloſe compacted ſubſtances, which are more ſupple and more pliant than the griſtles; are hard to break, and cannot be extended or ſtretched without great difficulty. They ſerve to tie the bones together, as well as to bound and preſerve certain parts.

The *muſcles* are maſſes or bundles of reddiſh fibres, and are covered with their own proper membrane. The extremity of the muſcles are generally terminated with white, ſlender, compact fibres, which form a round body called a *tendon*. When they are dilated into a thin, flat, and broad kind of membrane, it is called *aponeuroſis*. The red, ſoft parts of the muſcle are commonly called *fleſh*. Their action conſiſts in contracting the fibres.

The *glands* are little bodies formed by the texture of fibres of every kind, and are covered with a membrane. Thoſe that ſeparate any fluid from the blood, as the kidneys, are called *conglomerate*; thoſe that ſerve to perfect the lymph are termed *conglobate*: thus the glands of the groin, armpits, &c. are *conglobate glands*.

With regard to the *blood-veſſels*, the *arteries*, and the *veins*. The *arteries* are elaſtic tubes which pro-

ceed from the heart, from whence they receive the blood, and convey it to all the parts of the body. The *veins* are only a continuation of the laſt diviſion of the arteries, and return the ſuperfluous blood to the heart. The arteries have two motions, the one of dilatation, called the *diaſtole*; the other of contraction, termed the *ſyſtole*. Theſe oppoſite motions form the *pulſe*. The veins have no ſenſible motion; but they contain *valves* at certain diſtances, which hinder the blood from returning back.

The *lymphatic veſſels* are divided into arteries and veins: The *lymphatic arteries* are ſmall tranſparent veſſels, which convey an aqueous fluid, called *lympha*, to all the parts of the body. The *lymphatic veins* are only a continuation of the arteries of the ſame name, which carry part of the lympha back to the blood.

The *lacteal veſſels* are a kind of lymphatic veins, becauſe though they receive the chyle from the inteſtines, yet they are full of lympha when that fluid is abſent.

The *nerves* are white cylindrical cords white proceed from the brain and ſpinal marrow. They have a covering from a membrane of the brain, called the *dura mater*, and are diſtributed into all parts of the body, and convey a fluid called the *animal ſpirits*, which are the principle of motion and perception.

The *adipoſe membrane* is placed on the internal ſurface of the ſkin, and is a texture of very fine membraneous leaves, in which are an infinite number of cells filled with fat, which communicate with each other.

On the outſide of the hide or ſkin is the *hair*, which ſerves for cloathing, defence, and ornament. It lies thicker and ſmoother on the young horſes than the old.

The *ſcarf-skin* is the uppermoſt cover of the hide, all over the body, through which the hair grows.

This

This is the part that riſes in bladders after bliſtering or burning. It ſerves to defend the *nervous papillæ* from the immediate action of external bodies; whoſe impreſſion would be too painful without it.

The *ſkin* or *hide*, I mean that part of it properly called the ſkin, is compoſed of membranous and nervous fibres, and is full of veſſels. On its external ſurface are ſmall glands, whoſe excretory ducts open on the external ſurface, and ſerve to carry off the ſweat. On the outward part are the *pyramidal papillæ*; theſe are ſmall eminences which are extremely ſenſible, eſpecially in any part where the ſcarf ſkin is off.

Of the FLUIDS.

BY *fluids* we are to underſtand that humour contained in the ſolids which compoſe the human body; the principal of which is the *blood*. All the other fluids proceed from hence, except the *chyle*, from whence the blood itſelf is formed; and therefore we ſhall ſpeak of that firſt.

The *chyle* is a milky fluid, extracted from the aliments by means of digeſtion. It is made ſooner or later, according as the horſe's ſtomach is ſtronger or weaker. It conſiſts of ſeveral fluids, of the liquor that is expreſſed from the ſalival glands to dilute the food in chewing; of the liquor proceeding from the glands of the *œſophagus* or gullet; of the liquor of the ſtomach; of the pancreatic juice; of the gall, and the fluids that proceed from the ſmall inteſtines.

The *blood* is a fluid that no animal can be without, becauſe it ſupports life and the ſtrength of the body: for when the veſſels are emptied of it, all the operations of the mind and body ceaſe. When the blood is let out into a veſſel, as ſoon as it is cold it coagu-

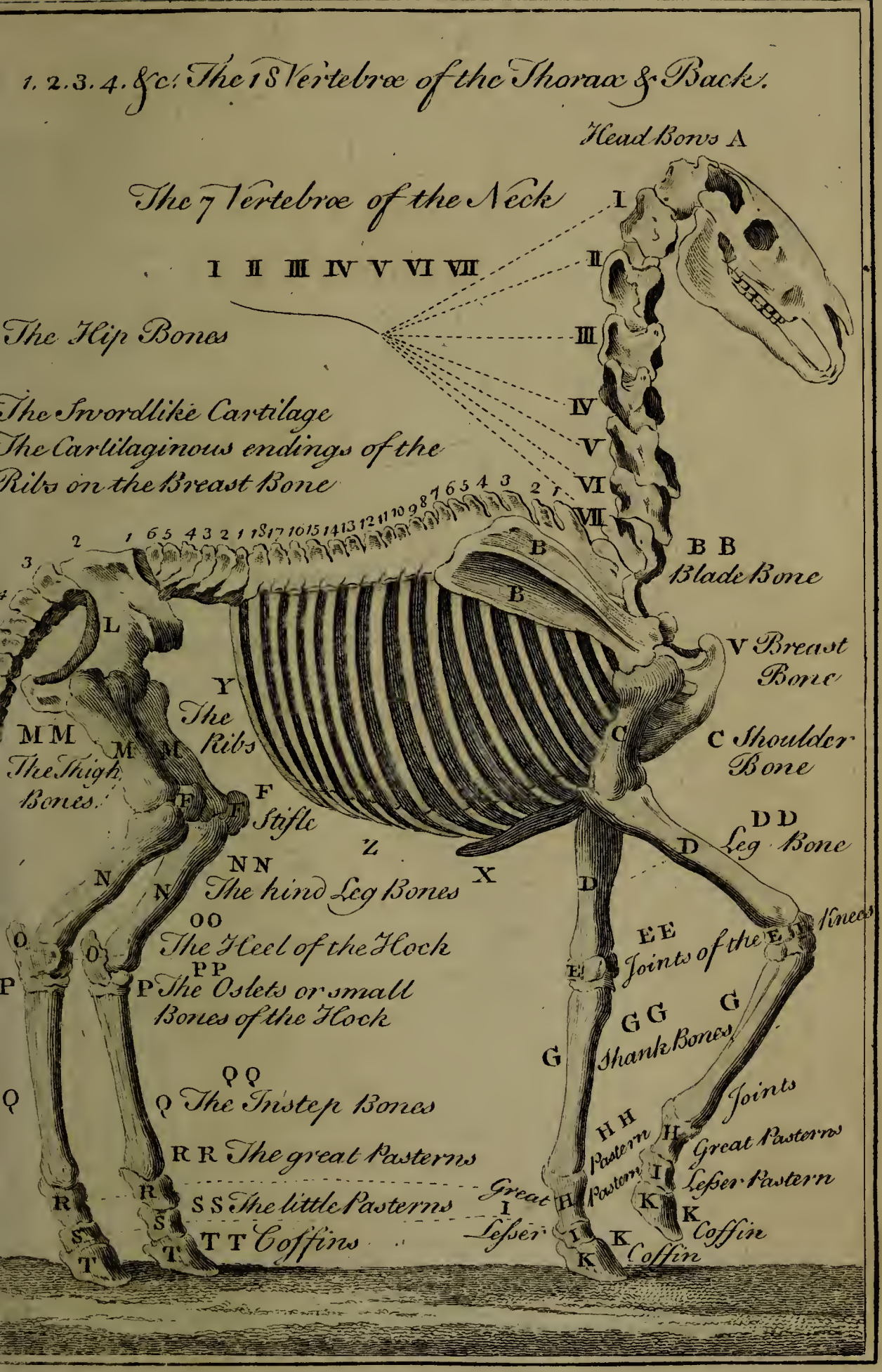
lates and ſeparates into two parts, whereof one is red and like a curd, and the other is fluid and ſerous.

Some of the fluids which are ſeparated from the maſs of blood, are mixed with it again; ſuch as the *fat*, the *ſynovia*, the *animal ſpirits*, &c. Some are carried entirely off, as the *urine*, the *matter of inſenſible perſpiration*, and *ſweat*. Another ſort again are between both the former, part of which is thrown out, and part returns into the blood again; ſuch as the *ſaliva*, the *pancreatic juice*, the *bile*, &c.

Of the BONES, CARTILAGES, *and* LIGAMENTS.

THE bones of a horſe's head are ſeventeen in number; which are as follow: The *bone of the forehead:* this in colts is divided by a ſuture or ſeam down the middle, which wears out in time. The two *parietal* or *ſide-bones:* theſe are divided by a ſuture which reaches along the middle of the head, from the forehead to the noll bone ſeated on the hind part of the head. All the bones of the head, except the temporal bones, are joined together by ſutures indented into each other, as in moſt animals. The temporal bones are united together by appoſition, and to circumambient bones by a kind of gummy cement. They are thick and very hard in the middle and lower part, but are thinner above, eſpecially round their upper edges. The bones of the upper jaw are the *wedge-like bone*, the *jugal bone*, and the *ſieve-like bone*. The other eight belong to the ear, four on each ſide, and form the organs of hearing.

The *wedge-like bone* is joined before to the frontal bone, and behind to the lower part of the occipital or noll bone, making the bottom or baſis of the ſkull. The *ſieve-like bone* divides the noſtrils, and gives a paſſage to the ſeveral nerves or veſſels which are ſubſervient


1. 2. 3. 4. &c. The 18 Vertebræ of the Thorax & Back.
Head Bone A
The 7 Vertebræ of the Neck
I II III IV V VI VII
The Hip Bones
The Swordlike Cartilage
The Cartilaginous endings of the Ribs on the Breast Bone
B B Blade Bone
V Breast Bone
C Shoulder Bone
DD Leg Bone
Y The Ribs
MM The Thigh Bones
F Stifle
Z
X
NN The hind Leg Bones
OO The Heel of the Hock
PP The Oslets or small Bones of the Hock
QQ The Instep Bones
RR The great Pasterns
SS The little Pasterns
TT Coffins
EE Joints of the Knees
GG Shank Bones
HH Pastern
Great Pasterns
I Lesser Pastern
K Coffin
Joints
Great
Lesser

ſervient to the ſenſes of ſeeing, hearing, and ſmelling. There are ſeveral cavities in this bone filled up with ſpungy fleſh.

The *upper jaw-bone* is joined to theſe, and has a little proceſs, which forms a part of the orbit of the eye. The cheek bone is part of this, and has a hollow below the eye on each ſide, which is divided by four boney portions that open into the noſe. There is likewiſe a little hole on each ſide, through which a pipe paſſes, to carry off the ſuperfluous moiſture from the glands at the inner corners of the eyes. When theſe are ſtopt, it occaſions the diſtemper called the *haw*. On the lower part are the ſockets of the teeth, which with the tuſks are twenty, *viz.* ſix fore-teeth, and twelve grinders or double-teeth, that is, ſix on each ſide.

The lower jaw is moveable, and is articulated into the lower part of the temporal bone. It is round and ſmooth on the lower edge, and hollow within, containing cells filled with marrow; the middle or flat part is more ſolid. The ſockets of the teeth are the ſame in number as in the upper jaw.

Several blood-veſſels paſs through the ſeams of the ſkull, and through holes and perforations in ſeveral parts of the ſkull: theſe carry the blood to and from the brain and its membranes. There are likewiſe ſeveral paſſages for the nerves, all which are beſt ſeen in the ſkull of a horſe.

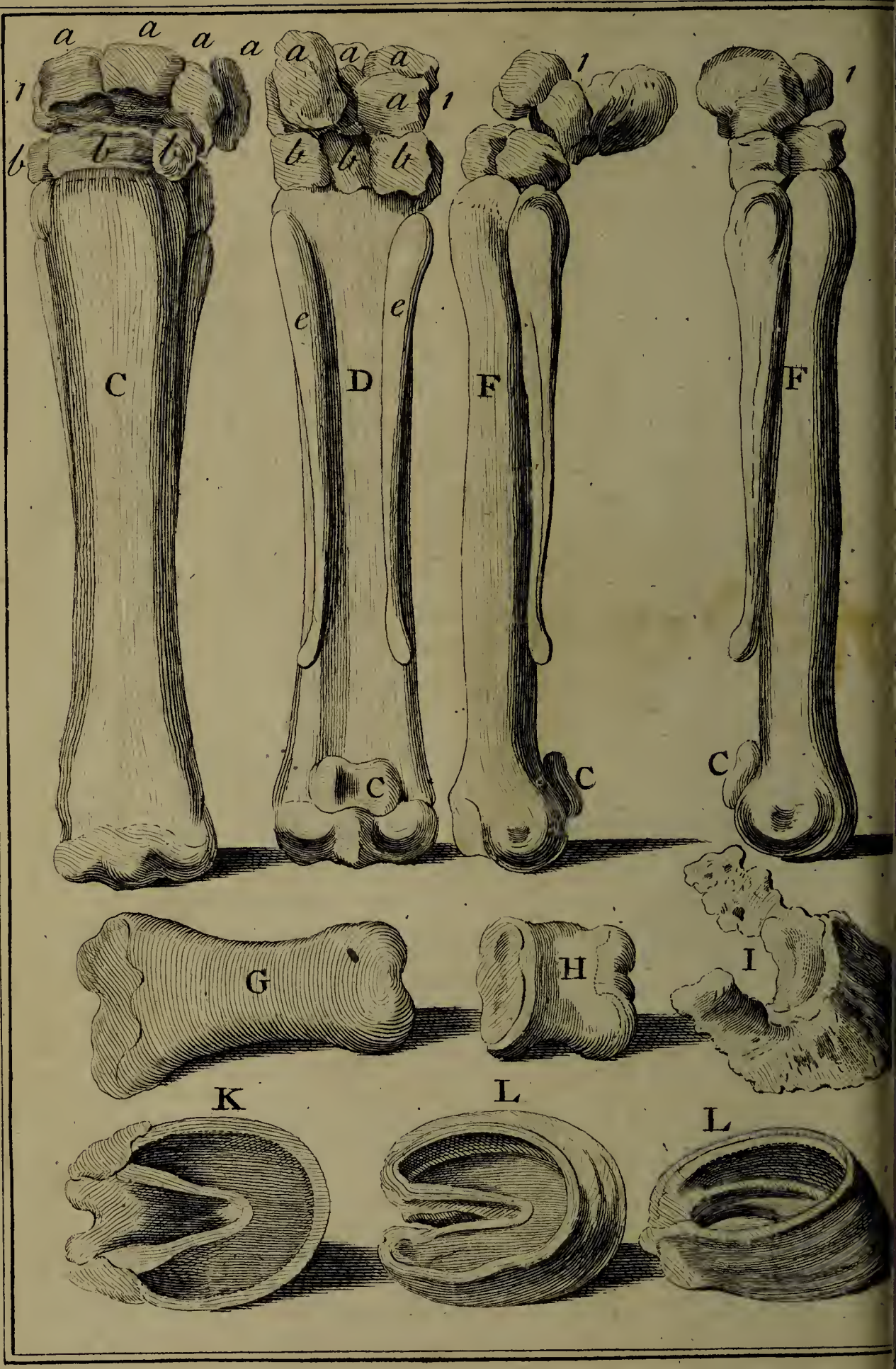
There are ſeveral impreſſions and furrows on the inſide of the bones of the ſkull, and which are made by the arteries of the *dura mater*, a membrane that enwraps the brain. When the bones of the ſkull are quite grown, no common ſaw will touch them; by which means a horſe's head is well defended againſt external injuries, unleſs it be towards the noſe, for that part conſiſts of more ſpungy bones and cartilages, which are extremely ſenſible and tender.

The bone of the tongue is like a Greek *v*, and ſerves for the inſertion of the ſeveral muſcles of the head or palate and wind pipe.

The *vertebræ* or bones of the back are thus numbered: The neck has ſeven, the back ſeventeen, the loins ſeven, the croup ſix, and the tail eighteen. The ſpines of the bones of the neck are round and ſmooth, with a hollowneſs between them on each ſide. The uppermoſt has a proceſs which is received into the ſecond, and on which the head turns as on a hinge. The ſeventeen joints of the back have very high ſpines, eſpecially on the withers, which riſe arch-wiſe and are united by a ſtrong ligament. The ſpines are ſhorter along the withers, till they approach the loins, where they riſe higher. But behind they are more level as they approach towards the rump. All theſe have large holes, through which the marrow of the back paſſes from the brain to the rump. The bones of the tail are not perforated, being without marrow. They are ſpungy, and joined together by ſoft griſtles. They are largeſt at the rump, and leſſen gradually till they end in a point.

The *collar-bones* are one on each ſide, ſhaped like an *ſ*. They are united at one end to the upper part of the breaſt bone by little heads which enter into the cavities, and to the uppermoſt rack-bone of the back. They ſerve to ſupport the blade-bones, and to keep them from ſliding forward.

The *ribs* are diſtinguiſhed into the true and falſe, and are 34 in number. The true are neareſt the ſhoulders, and are nine in number on each ſide, which are joined to the rack-bones of the back. The baſtard or falſe ribs are eight on each ſide: they are not ſo hard and ſtrong as the true ribs, and grow ſhorter as they approach towards the flanks; they are all thick towards the back, but thin and flat on the other end. When the ribs are large in compaſs, a horſe's belly looks more round; but when they are ſhort, a horſe's belly


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belly has not that aſpect which gives a general ſatisfaction, nor does the animal breathe ſo freely. They are very ſmooth on the inſide, being covered with a membrane extremely fine.

The *breaſt-bone* is ſhaped ſomewhat like the bottom of a ſhip and has cartilaginous dents where it receives the lower end of the true ribs. That part next the pit of the ſtomach is called the *ſword like cartilage*, becauſe its point reſembles a ſword.

The *blade-bone* of the ſhoulders runs from below the withers to the point of the ſhoulder bone, which laſt turns backwards toward the elbows, making an acute angle with the former. The blade-bone is joined to the ribs by muſcles which have very ſtrong tendons. In the lower end there is a ſhallow cavity, which receives the head of the ſhoulder bone. It is ſurrounded with a tough cartilaginous ſubſtance, and is covered with a broad ſtrong ligament, which not only prevents the ſhoulder bone from ſlipping out, but renders the motion of the ſhoulder eaſy, and fit to play in all the neceſſary directions.

The *ſhoulder bone* is ſhort, and reaches to the elbow, where it joins to the bone of the fore leg by very ſtrong ligaments. It has two proceſſes at the lower end, between which a high proceſs of the leg bone enters, which makes the elbow joint; and the high ſlender proceſs of the leg bone makes the elbow. This riſes higher than the joint, and hinders the leg from turning backward.

The *leg-bone* is joined to the ſhank-bone, which are received into each other. This joint makes the knee, and has two ranks of little bones within the bending of the knee, three in the firſt, and four in the ſecond, which ſerve to render the motion ſafe and eaſy. They are united together by ligaments, which are partly tendious, and partly cartilaginous.

The *ſhank bone* reaches from the knee to the *great paſtern*, and is compoſed of three bones, one of which

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is large, and the others ſmall. Theſe laſt are thick and round upwards, and ſmall downwards. The great paſtern has three ſmall proceſſes, which are received into three cavities of the ſhank-bone. The great paſtern has likewiſe two cavities, which receive the proceſs of the ſhank-bone. On the back part of the great paſtern, two triangular bones are fixt, which form the *fetlock*, and ſerve to ſuſtain the joint in its regular motions, preventing the falſe.

The *little paſtern*, or *coronary bone*, is ſo cloſely united with the *great paſtern*, that they ſeem to be one before examination. The lower end of the little paſtern is articulated with the coffin or foot-bone, between which behind is placed the *nut-bone*, ſo called by *Monſieur la Foſſe*, and which is omitted by *Gibſon*. The little paſtern is reduced into the great by two heads, and into the coffin-bone in the ſame manner.

The *coffin-bone* is ſo called, becauſe it lies within the hoof, as in a coffin. It is round on the upper part, where it receives the little paſtern or coronary-bone, but grows broader and thinner toward the bottom. It is of a porous ſubſtance, and may be eaſily pierced by nails or other ſharp things that are trod upon.

The *nameleſs bones* are ſeated on the hind part of a horſe, and are divided into the *haunch*, the *hip*, and the *ſhare-bones* The flat ſides of the hip-bone form the hip, with the muſcles that are placed in the hollow of them. The haunch-bones, which ſome call the *os pubis*, make a ſmall arch at the extremity of the lower belly, through which the yard paſſes, at the entrance of which is the neck of the bladder. The *ſhare-bones*, termed in Latin the *iſchium*, have a round cavity on each ſide which receive the head of the thigh-bone. The back or upper part of theſe bones are joined to the *os ſacrum* by cartilages or griſtles which in time turn almoſt into bones. The bone called the *os ſacrum* lies under the crupper, next the rump; which, with the nameleſs bones, form the pelvis or baſon. It

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is joined to the loweſt rack-bone of the loins, and to the uppermoſt bone of the rump.

The thigh-bone has a round longiſh head, called by ſome the whirl-bone, which enters the cup of the hip-bone, and on which it turns backward and forward. The lower end of the thigh-bone has two proceſſes, like a pully, between which there is a large ſpace which receives the protuberance of the leg-bone. Between the thigh-bone and the leg-bone there is a hollow that receives the ſtifle-bone, which anſwers to the knee-pan of a man. It is prominent on the outſide, and rough where the muſcles of the thigh are inſerted, and curved and ſmooth on the inſide. It is kept in its place by a ſtrong ligament which riſes from the upper end of the leg-bone, and is inſerted into its lower end: as alſo by the tendons of the muſcles of the thigh, which are inſerted into its upper end: together with a ſtrong ligamentous ſubſtance which is expanded all over it. It is very ſtrong and ſolid, like a piece of flint, and has no cavity.

The *ſmall bones of the hock* are placed in two ranks, like thoſe of the knee: the firſt conſiſts of three, and the ſecond of four, which are articulated into the inſtep. They are ſmooth, to facilitate the motion of the joint, and ſerve to keep a horſe's legs from doubling under him. The *inſtep* conſiſts of three bones cloſely united, which appear as one. The paſtern and coffin-bone differ in nothing from thoſe of the fore-feet.

The *hoofs* are made up of huſks, which cover the *pyradimil* papillæ of the ſkin, which lie cloſe upon one another. They are without ſenſe, that the horſe may the better encounter the roughneſs of the road. When they are paired or cut, they always grow again. They are faſtened to the coffin-bone by a ligament which ſurrounds it below the coronet, like a piece of tape. Underneath the hoofs are many twigs of tendons, nerves, and muſcles, which run to the bottom

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of the foot, making the ſubſtance which lies beneath the ſoal and the coffin-bone.

All the long bones are hollow in the middle, being filled with marrow, and porous at the extremities; over which they have an epiphyſis or griſtly cap, to render the motion of the horſe free and eaſy; there are likewiſe glands in the joints, which ſeparate an oily matter, which always keeps them ſlippery, and prevent their wearing.

Of the MUSCLES.

THE *muſcles* have been defined before, and are well known to be the inſtruments of motion. They have long been the ſubject of an elaborate enquiry in a human body, and for that reaſon have obtained particular names. But as theſe are wanting in a horſe, we can only at preſent deſcribe them by their uſes. And this, if duly attended to, will anſwer all the purpoſes of thoſe, who out of curioſity examine into the nature of a horſe, or who have undertaken the more arduous taſk of curing their diſeaſes, eſpecially in caſes wherein the muſcles are principally affected.

I ſhall begin with the *muſcles* of the *eyelids* and *eyes*. The eyelids have one pair of muſcles, which ſerve to open them, and two to ſhut them. That which is employed in opening them, is peculiar to the eyelid; whereas the other two, whoſe uſe is to bring them together, or ſhut the eye, is inſerted into both. They all have their riſe from the edge of the hole in the bottom of the orbit, through which there is a paſſage for the optic nerve. The muſcles in the forehead have ſome ſhare in theſe actions, which may be perceived when the horſe is brought out of a dark place into the light.

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The *eye* has ſeven pair of muſcles, to perform the variety of motions which that organ requires. They have ſix of theſe in common with men, and have their riſe from the ſame part as the former, as alſo the ſeventh, which is peculiar to animals that feed with their heads downwards, and ſerve to ſuſpend the eye, keeping it from projecting too far outwards. It is ſhort and fleſhy, and is inſerted into the hinder part of the *cornea*.

The *noſe* has four pair of muſcles, which riſe from the upper jaw, and from under the eyes. They are all inſerted into the griſtles of the noſtrils, and part of the upper lip. They ſerve to widen and contract the noſtrils: which action is moſt apparent when horſes are much heated with exerciſe, when they are broken-winded, and when they have a fever. When the working of the noſtrils is violent, the upper-lip is drawn upwards at the ſame time.

The *lips* have five pair of muſcles that are proper, and two common to the mouth and cheeks; one pair of theſe ſerve to draw the ſuperior lip directly: Beſides, there is a remarkable muſcle which belongs to the lips, and aſſiſts in all the motions of the jaw, and has a very ſtrong action; for which reaſon, it ariſes partly from the *vertebræ* of the neck, partly from the ſhoulder-bone, breaſt-bone, and collar-bone, and is inſerted into the chin, lips, and lower part of the noſe. The remainder, which direct the motion of the lips; ariſe from the upper and lower jaw, and are inſerted into the ſphincter muſcle, which ſurrounds the extremity of the lips

The muſcles belonging to the *lower jaw* are the temporal muſcles, which compoſe the fleſhy part of the temp'es, which ſerve to ſhut the mouth, and the above-mentioned ſtrong muſcle which is inſerted into the chin and upper lip, which helps to pull down the jaw, and open the mouth. The maſſeter muſcles are

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uſed in chewing; and there is one pair that pull the jaw forwards, and another backwards.

The *tongue* conſiſts of muſcular fibres, which lie in different directions, and have different motions. The tongue has ſeven pair of muſcles, ſome of which ariſe from the lower jaw, and ſome from the *os hyoides*. One pair ariſes from the temporal bones, and pulls the tongue backwards, being inſerted in the ſide of the tongue, and another proceeds from the lower jaw near the furthermoſt grinders, and is inſerted into the bridle of the tongue. When theſe act together, the horſe is enabled to ſwallow the aliment after it is chewed.

The head of the wind-pipe has ſix pair of muſcles, which help to open and ſhut its valves when the air paſſes and repaſſes in breathing. It has likewiſe another pair which draws both ſides of the ewer-like griſtle together, to prevent any hurtful matter from entering therein. The *epiglottis*, which ſerves chiefly to open and ſhut the wind pipe, has very ſmall muſcles. When theſe muſcles are affected by colds, or are inflamed, they render ſwallowing difficult.

The head of the *gullet* or *pharynx* has muſcles which ſerve to contract or open the upper orifice of the gullet; and there is likewiſe a kind of ſphincter muſcle which ſerves to contract it after feeding.

The *ears* of a horſe are very moveable, and are therefore turned different ways according to the different directions of ſounds, eſpecially when they are hot or fearful. The outward ear has four muſcles; one of which lifts it up and points it forward; a ſecond pulls it backward; a third points it downwards; the fourth aſſiſts the ſecond, and pulls the ear backward, and downward towards the horſe's neck. A quick motion of the ear is a ſign of ſtrong muſcles, and a good ſpirit. The *inward ear* has two muſcles which belong to the organ of hearing.

The *head* and *neck* are moved forward, backward, ſideways, and ſomewhat circular. To perform which motions,

motions, there are eight pair of muſcles proper to the head, and four pair common to the head and neck. Some of the proper muſcles ariſe from the breaſt-bone, collar-bone, and the *vertebræ* or rack-bones of the neck, and are inſerted into the occipital or noll-bone, or into the proceſſes of the temporal bones. Thoſe that belong both to the head and neck, ariſe from the breaſt-bone, the ſpines of the vertebræ of the cheſt, and the rack-bones of the back, and are inſerted higher or lower into the tranſverſe proceſſes of the bones of the neck. Theſe with the muſcular expanſions between the proceſſes make up the bulk of the fleſh lying on thoſe parts. The expanſions are the *interſpinal muſcles* which aſſiſt in the motions of the vertebræ.

The *back* and *loins* have four pair of muſcles, common to both. The firſt pair are very long, for they extend from the haunch-bones and the *os ſacrum* to the temporal bones on each ſide of the neck, and are connected with the ſpines as they paſs along. They are a great ſecurity to the back, and aſſiſt the other three pair in all their motions. When all theſe muſcles act together, the whole back is contracted; but when they act on one ſide only, they bend the body on that ſide.

The *lower belly* has five pair of muſcles, which ſeverally riſe from the haunch-bone, ſhare-bone, ribs, breaſt, and other adjacent parts. They are moſtly inſerted into the white line which runs along the middle of the belly. One pair paſſes obliquely downwards, another obliquely upwards, another has a ſtraight direction from the breaſt to the ſhare-bone. A fourth pair aſſiſts the ſtraight muſcles in pulling down the breaſt: and the fifth are the tranſverſe pair which run from the loins and lowermoſt ribs, on each ſide, to the white line. The uſe of theſe muſcles is to compreſs the belly, and diſcharge the excrements;

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likewiſe they aſſiſt the midriff, together with the muſcles of the breaſt and ribs, in reſpiration.

The *breaſt* has four pair of muſcles to expand and dilate the cheſt, and two pair to contract and compreſs it These compoſe the fleſh which belongs to the briſket, and all the breaſt from the collar-bone down to the pit of the ſtomach; together with that which covers moſt of the foremoſt ribs. Some of theſe proceed forwards from under the ſhoulder-blades and rack-bones of the neck and cheſt, and ſome ariſe backwards from the rack-bones of the loins and os ſacrum. Theſe are moſtly inſerted into the ribs, in ſuch a manner as will beſt promote an eaſy and perfect reſpiration. The *intercoſtal muſcles* are that portion of fleſh that lies between the ribs, whereof part are ſaid to be internal, and part external. Theſe help to ſtraiten and dilate the breaſt alternately in breathing.

The *diaphragm* or *ſkirt* is a muſcular ſubſtance which ſeparates the cheſt from the lower belly. It ariſes on the left ſide from a proceſs of the rack-bones of the loins, and on the left from the uppermoſt of the loins, and the lowermoſt of the breaſt. It is inſerted into the breaſt bone, and the five lower ribs. The middle is flat and tendinous, till the commencement of the fleſhy fibres. Theſe fibres proceed from hence as from a center, and are ſent all round like the rays of a circle. When this muſcle acts, it pulls the ribs downward, and aſſiſts the muſcles of the lower belly in the expulſion of the excrement; but is more particularly uſeful in aſſiſting reſpiration. This muſcular ſubſtance is greatly relaxed, and extended in broken winded horſes.

The *heart* is a noble part, whoſe ſhape and appearance is well known to all. It is compoſed of fibres that run in a ſpiral direction; as alſo of tranſverſe, longitudinal, and ſtraight fibres; by which means it acts as a muſcle, and is the principal organ in the circulation of the blood. It has two cavities near each other,



These References 1.2.3.&c. belong to the Description of Muscles of the Leg. in the Appendix.

other, whereof one is called the right ventricle, and the other the left. The *pulmonic artery*, which diſtributes the blood to the lungs, proceeds from the right ventricle, which is the largeſt and thinneſt. The great artery which carries the blood to all the parts of the body, ariſes from the left ventricle. Upon the upper part of each ventricle there is another cavity called the auricle. The *vena cava*, or great vein which brings the blood from all parts of the body, is joined to the right auricle; and the pulmonary vein which brings the blood back from the lungs, is joined to the left auricle. The auricles, like the ventricles, are ſet one againſt another. In the inward part of the ventricles there are ſeveral valves. Thoſe which are placed at the entrance of the ventricle ſuffer the blood to paſs from the heart, and hinder it from returning the ſame road. Thoſe which are placed at the entrance of the auricles, permit the blood to enter into the ventricles, and prevent it from returning back the ſame way.

The whole *inteſtinal canal* reaches from the top of the gullet to the anus, including the ſtomach. One of their coats conſiſts of muſcular fibres, which by their power of contraction aſſiſt digeſtion, and promote the paſſage of concocted aliments, part of which being turned into chyle, enters the villous coat of the inteſtines: they likewiſe forward the exit of the groſs excrementitious maſs that is left behind.

The *anus* or *fundament* has a ſphincter muſcle ſeated at the extremity of the *rectum* or ſtraight gut. It conſiſts of circular fibres, and ſurrounds the anus like a ring. Its uſe is to cloſe the fundament, and to prevent the falling out of the gut. There is a muſcle called the *levator*, which aſſiſts the expulſion of the excrements: it riſes from the ligaments of the hip-bones and os ſacrum, and is inſerted into the ſphincter.

There is alſo a ſphincter muſcle which ſurrounds the neck of the bladder, to prevent the urine from

coming away involuntarily. The muſcles belonging to a horſe's yard are the *erector*, the *dilator*, and the *cremaſter*.

The *ſcapulæ* or ſhoulder-blades have four pair of muſcles. The firſt are the *cucullares*, which are placed on the top of the withers, and when they are very fleſhy, they render a horſe thick-ſhouldered. They are ſlender at their riſe, and grow broader as they proceed to their inſertion into the ſpine or ridge of the ſhoulder-blades, the collar, and the ſhoulder-bones. The ſecond are the *levators*, which cover the collar-bones. They ariſe from the firſt tranſverſe proceſs of the neck, and are inſerted in the fore part of the ſhoulder, drawing them upwards and forwards. The third pair are ſeated under the pectoral muſcles, ariſing from the four foremoſt ribs, and terminating in the anchor proceſs of the blade-bone. Theſe draw the ſhoulder-blades forward. The fourth ariſes from the lowermoſt ſpines of the neck and the uppermoſt of the breaſt, and are inſerted into the bottom of the ſhoulder-blades by very ſtrong tendons. When they act, they draw the ſhoulder-blades a little upwards and backwards. Hurts or ſtrains of theſe muſcles produce lameneſs of the ſhoulders.

The ſhoulder, properly ſo called, reaches from the point of the blade-bone to the elbow, and has nine muſcles: the firſt of which ariſes from the collar bone, and running along part of the blade-bone, goes to be inſerted about the middle of the ſhoulder-bone, ſerving to raiſe the ſhoulder upwards. The ſecond proceeds from the ridge or ſpine of the ſhoulder-blade, and is inſerted by a ſtrong, broad tendon into the neck of the ſhoulder-bone. There are two which ſerve to depreſs the ſhoulders or pull them down: the firſt, called *latiſſimus dorſi*, ariſes from the *os ſacrum* near the rump, from the haunch bones, and the rack-bones of the back, and ſpreads over a great part of the back; its fellow doing the ſame on the other ſide, and is in-

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ſerted into the ſhoulder-bone. The other depreſſor riſes from the lower ſide of the ſhoulder-blade, and is inſerted into the upper and inner ſide of the ſhoulder-bone. The pectoral muſcles ariſe from the inner part of the ſhoulder-blade, near its edge, and are inſerted a little below the round head of the ſhoulder-bone. They ſerve to bring the ſhoulder forward. The firſt of the remaining three has its riſe under the ridge of the blade-bone, and terminates in one of the ligaments of the ſhoulder-bone. The ſecond is ſeated between the ſhoulder-blade and the ribs, and terminates in another ligament of the ſhoulder-bone. The laſt proceeds from the lower angle of the ſhoulder-blade, and terminates in the neck of the ſhoulder-bone. Hurts, ſprains, and relaxations of the bones have produced a ſwelling and a lameneſs, which have cauſed many to think the ſhoulder has been out of joint. But this is very ſeldom the caſe, and whenever it does happen, it will ſcarce admit of a remedy.

The fore leg has ſeveral muſcles to perform its motions. The firſt proceeds from the anchor-like proceſs of the ſhoulder-blade and the upper edge, and terminates on the inſide of the knee, a little above the joint. The ſecond ariſes from the middle of the ſhoulder-bone, and is inſerted near the ſame place. Theſe ſerve to raiſe up the leg. Another muſcle ariſes from the lower edge of the blade bone, and is inſerted into the outſide a little above the knee. Another ariſes from the ſhoulder-bone, and terminates in the ſame place. Theſe, with two other ſmall muſcles, compoſe the fleſhy part of the arm.

There are two muſcles which bend the knee, and two others that extend it. The *flexores* or *benders* of the knee proceed from the inner knobs or proceſſes of the ſhoulder-bone, and running down on the inſide lower than the knee, are inſerted into the hinder part of the top of the ſhank. The *extenſores* or *extenders* of the knee proceed from the outer proceſs or knob of

the ſhoulder-bone, the tendons of which paſſing over the knee, are inſerted into the fore part of the head of the ſhank. Theſe, together with the ligaments to which they are joined, compoſe the tough ſubſtance on the fore part of the knee.

There are two *flexores* or benders, and two *extenſores* or extenders, that belong to the fore paſterns and coffin-joints. The firſt of the *flexores* of the paſtern reaches from the ſhoulders to the hinder part of the paſtern-joint, where it is inſerted: its tendon forms the back ſinew of the fore-leg. The other ariſes from the upper part of the ſhank-bone, and is inſerted into the coffin-bone. The firſt extender of the paſterns proceeds from the outer proceſs or knob of the ſhoulder-bone, and is inſerted into the fore and outer part of the paſterns and the coffin-bone. The other riſes fleſhy from the inner proceſs or knob of the ſhoulder-bone; but quickly changes into a ſmall tendon, and deſcends to the bottom of the ſole, where it terminates in a fleſhy expanſion, which is very ſenſible.

Near the fore part of the inſtep, and behind in the bending of the paſtern, there is a ligament like a ring to ſecure the tendons of the muſcles that paſs to the bones of the paſtern and coffin and ſerves to ſtrengthen them, as well as to keep them in their place.

That part of a horſe is called the thigh, which reaches from the huckle or whirl bone to the ſtifle-bone or knee-pan. Three muſcles pull the thigh forwards, or raiſe the ſtifle towards the belly. The firſt riſes from the tranſverſe proceſſes of the lowermoſt vertebræ of the cheſt, beneath the withers, and two or three of the uppermoſt of the loins, and ending in a ſtrong, round tendon, is inſerted into the leſſer head of the thigh-bone. The ſecond riſes from the ſhare-bone, and turning likewiſe into a ſtrong round tendon, is inſerted into the leſſer head of the thigh bone, near the ſtifle. The third, as well as the reſt of the muſcles of the thigh, except two that turn the thigh obliquely, ariſe

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from the hip-bones, rump, and *os ſacrum*; part from their outſides, part from the inſides, part more diſtant, and part nearer, and go to be inſerted above the ſtifle, or at the very extremity of the thigh-bone.

Theſe compoſe the fleſhy part of the hip, and paſs over the hip-joint, to which they are a great ſecurity. One of the pairs that turn the thigh obliquely, have their riſe from the outer circumference of the *iſchium*, and the outer proceeds from the inner circumference. They are both inſerted near the great rotator of the thigh, to prevent the irregular motions of the other muſcles.

The leg has five pair of muſcles that ſerve to extend it. The firſt ariſes from the upper part of the *os ileum*, and is broad and thin, making a kind of membranous expanſion, which covers the greateſt part of the other muſcles of the thigh, and ſpreading over the ſtifle, is inſerted into the upper part of the *tibia* or leg-bone. The ſecond riſes near the firſt, and is alſo inſerted into the leg-bone forwards, a little below the ſtifle. Theſe two have a ſort of oblique courſe, but the third runs ſtraight along the fore part or edge of the thigh, as far as the ſtifle, where it changes into a broad ſtrong tendon, which adheres cloſe to the bone as it paſſes over it, and is inſerted into the upper head of the leg-bone. The other two are ſo large, as chiefly to make up the fleſhy part of the thigh. The firſt proceeds from the great trochanter and the neck of the thigh-bone, and the ſecond from the leſſer trochanter. The tendons of both the muſcles paſs over the ſtifle, and uniting with the former, are inſerted into the upper part of the leg-bone, the one towards the outſide, and the other towards the inſide. The tendons of theſe muſcles, but more eſpecially thoſe of the laſt three, compoſe the ſtrong cap or cover that lies over the knee-pan, in order to prevent a diſlocation.

The *flexores* or benders of the leg are four. It has likewiſe a muſcle that moves it obliquely. The two

firſt riſe from the proceſs or knob of the coxendix or rump-bone, and are inſerted backwards below the bending of the leg, behind the ſtifle, one on each ſide: they make up the bulk of the fleſh on the hind part of the thigh. The third ariſes near the firſt and ſecond; and the fourth from the middle of the ſhare-bone, and paſſing downward between the other two, are inſerted into the back part of the leg-bone, near the middle. When it acts, it brings up the hock toward the hip. The two firſt acting ſingly, draw the leg either to one ſide or the other; but when they all act together, they draw the leg directly backwards. The fifth muſcle which moves the leg obliquely, has a broad and nervous origin at the outward head of the thigh-bone, and paſſing obliquely down the thigh, terminates in the hinder part of the upper prominence of the leg-bone.

Of the muſcles of the lower part of the leg or inſtep, two ſerve to lift them up. The firſt has a fleſhy origin from the upper appendage of the leg-bone, a little below the ſtifle: it adheres cloſe to the bone as it deſcends, and paſſing beyond the cartilaginous or griſtly part of the hock, is divided into two ſmall tendons, which are inſerted into the fore part of the inſtep bone. This, when it acts, raiſes the inſtep and foot upwards, and bends the hock at the ſame time. The ſecond proceeds from the upper appendage of the leg a little below the ſtifle, and terminates on the outſide of the inſtep bone, aſſiſting the other in the above-ſaid action, and at the ſame time inclining it ſomewhat outwards.

The *extenſores* or extenders of the foot are three. The firſt riſes with two heads from the inner and outer head of the thigh-bone, and with the two following anſwer to the muſcles which compoſe the calf of the leg in men, namely, the *gaſtrocnemius*, the *plantaris*, and *ſolaris*. The tendons of theſe three muſcles uniting together, form the great tendon or maſter-ſinew, which

which is inſerted into the back part of the ham, or the heel of the hock. It is called the *tendo Achilles* in men. Theſe muſcles ſerve to ſtretch out the leg. The *plantaris* or muſcle of the ſole leaves the other two at the heel of the hock, and paſſing along ſinewy on the hind part of the inſtep bone and paſtern, runs under the annular ligament at the bend of the heel, by which it is kept in its place; then turning fleſhy, it ſpreads itſelf at the bottom of the foot, in the ſame manner as the *palmaris* in the fore foot.

There are two muſcles that move the leg and foot ſideways: the firſt riſes from the upper end of the leg-bone below the ſtifle, and is inſerted into the coffin-bone; it ſerves to turn the foot inwards. The other proceeds from the hinder part of the ſame bone, and paſſing along the outſide of the hock, is alſo inſerted into the coffin-bone; and when it acts, it turns the foot obliquely outwards.

The *flexores* or benders of the paſtern and coffin-joint are two: the firſt ariſes from the hinder part of the leg-bone, and paſſing down to the inſtep and paſterns, is inſerted into the coffin-bone. The ſecond ariſes a little below the hock, and is likewiſe inſerted into the coffin-bone. The *extenſores* are alſo two: the firſt riſes from the ſhank, a little below the ſtifle, and is inſerted into the coffin-bone. The ſecond proceeds from the annular ligaments, on the upper part of the paſtern joint, and is likewiſe inſerted into the coffin-bone. Theſe ſerve to extend the foot, and place it firmly on the ground.

Of the INTEGUMENTS *of a* HORSE.

THE *hair* needs no deſcription, only it is obſervable that it is thicker and ſmoother in young horſes than in the old. It is a great ornament, eſpe-

cially in thoſe that have long manes and tails. When the ſkin has been wounded, burnt, or ſcalded, ſo as to deſtroy its texture, as ſoon as it is cured, a ſmooth cicatrix will ſucceed, and the ſpot will be left quite bare; or if the hair comes again, it is always white and weak in compariſon of the former. Hence the jockeys have learnt to make artificial ſtars in the foreheads of horſes, when they have none naturally.

Next under the hair lies the *ſcarf-ſkin*, which it paſſes through. It covers all the true ſkin, and, as was obſerved before, is that which riſes in a bliſter, when any part has been burnt or ſcalded; as alſo in the farcy or other diſeaſes of the ſkin. The matter of perſpiration, ſo neceſſary to health, paſſes through its pores; and when they are ſtopt by a ſudden change of air from hot to cold, many ſorts of diſeaſes may enſue; but particularly fevers.

The *ſkin* or *hide* lies under the ſcarf-ſkin, and conſiſts of a ſurpriſing texture of tendinous and nervous fibres, mixt with a great number of veſſels. This texture will ſtretch every way, as is obſervable in mares with foal, and afterwards return again to its natural dimenſions. Above this the papillæ are placed, which ſome make a diſtinct tegument, and call it the papillary body. It is compoſed of ſeveral eminences of a diſtinct figure, principally formed by the extremities of the nerves, which are diſtributed in the ſkin. They may be readily diſcovered when the ſcarf-ſkin is taken off: they are the organs of touching; and if they were not covered by the ſcarf-ſkin, which is inſenſible, every object of touch would excite pain. Under the ſkin the miliary glands are ſeated, which are exceeding numerous, and are looked upon as the ſecretors of ſweat.

Horſes, and many other animals, have a fleſhy pannicle which lies under the ſkin, by means of which they can move the ſkin to ſhake off any thing that lies looſe on the hair. It may readily be perceived on both

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ſides of the neck, the ſides of the belly, over the ribs and flanks, where the ſkin is looſe and moveable.

The fat lying under the ſkin is another tegument, which principally conſiſts of a collection of membranous cells kept together by a common membrane called the *adipoſe membrane*. Theſe cells are filled with an unctuous liquor, which returns into the blood by ducts called adipoſe veſſels, and ſerve to abate its acrimony. It is likewiſe of great uſe to render the muſcles of the ſeveral parts of the body ſoft and ſupple, and conſequently to enable them to perform their frequent and neceſſary motions without too much friction. It is thickeſt on the lower belly and hips, and between the interſtices of the large muſcles. It is ſometimes pretty thick on the neck and cheeks; but is thin about the limbs, and in all dry boney parts.

Of the Contents of the ABDOMEN *or* LOWER BELLY.

WHEN the *abdomen* is opened, the firſt thing that offers itſelf to view is the *peritonæum*, which is a kind of bag made of a thin membrane of pretty cloſe texture, and yet capable of a conſiderable extenſion, and of returning to its former ſtate. This bag contains the greateſt part of the *viſcera* of the lower belly, but in a particular manner. In ſeveral parts of the convexity there are ſeveral depreſſions, which form a kind of cells, which contain the viſcera within the *peritonæum*, namely, the guts, the ſtomach, the liver, the ſpleen, &c.

The *ligaments* which ſerve to ſuſtain moſt of theſe viſcera, are nothing elſe but a particular kind of doubling of the *peritonæum*, accompanied with a portion of the cellular and membraneous web, filled with fat, which covers its external ſurface; ſuch as the ligaments of the liver, the ſpleen, the uterus, and *meſentery* itſelf,

ſelf, which is the common ligament of the guts, and is formed by a doubling of the *peritonæum*, accompanied with its cellular web. This lies on the ſurface of the *peritonæum* throughout its whole extent; and is of a particular texture, conſiſting of ſeveral membranous cells, by means of which the *peritonæum*, is united to the ſides of the belly. The part contained in this web, which may be ſeen without opening the *peritonæum*, are the *kidneys*, the *ureters*, the *bladder*, the *lower large blood-veſſels*, &c.

The internal ſurface of the *peritonæum* is ſmooth and ſleek, and is continually kept moiſt by a ſeroſity which tranſudes through the pores throughout its whole extent. This moiſture is neceſſary to render the motion of the inteſtines more eaſy, becauſe otherwiſe the friction would cauſe a painful ſenſation.

The cellular web has four proceſſes, two of which accompany the crural veſſels, and the other two the ſpermatic veſſels in horſes. Theſe proceſſes have been generally ſuppoſed to be made by the *peritonæum*, but this is a miſtake.

The *peritonæum* being opened, you may diſcover all the viſcera of the lower belly. On the right ſide is the *liver*, the *gall-bladder*, and a part of the *gut colon:* on the left ſide, the *ſpleen*, a part of the *colon*, the *caul*, the bottom of the *ſtomach*, and the *pancreas:* in the upper part you may perceive the two orifices of the *ſtomach*, the *gut duodenum*, the trunk of the *vena portæ*, the lower *vena cava*, and the *great artery*.

The *caul* lies uppermoſt over the inteſtines, and is a very fine membrane larded with fat, ſomewhat like net-work; it reaches from the bottom of the ſtomach to the umbilical region. It reſembles an apron tucked up. The fore part of it is connected to the bottom of the ſtomach, to the duodenum and the ſpleen; and the hind part to the colon. The uſe of it is to preſerve the ſuppleneſs of the fibres of the guts, duodenum, and colon, to which it is connected: it ſends ſulphure-

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ous particles to the liver for the preparation of the bile, and by its unctuosity abates the acrimony of the blood.

The *œophagus* or *gullet*, being a part of the intestinal canal which is extended from the mouth to the *anus*, may properly be taken notice of in this place. It reaches from the bottom of the mouth to the diaphragm; next to this is a sort of bag called the stomach; and the remainder hath the general name of intestines or guts. The gullet descends along the neck behind the wind-pipe; the upper part, which is a little dilated, is called the *pharynx*. It has four coats: the first is common to the neighbouring part; the second is fleshy, and is composed of longitudinal and circular fibres; and the third consists of nervous or tendinous fibres crossing each other every way: the fourth is called the villous coat; it is very porous, and always besmeared by a clammy liquor proceeding from the glands lying behind it.

The *stomach* is a membranous bag seated behind the diaphragm or midriff. It is in shape like the bellows of a bagpipe, and has two orifices; the right of which is joined to the gullet, and the left, named *pyloris*, to the guts. It consists of the same membranes and coats as the gullet.

The *intestines* or *guts* are six in number; namely, the *small gut*, which in a man is divided in the *duodenum*, the *jejunum*, and the *ilion*, and is commonly about twenty-six yards in length; the *cæcum* or *blind gut*, the three *colons*, and the *straight gut*. The three colons are divided by two small necks, each about half a yard long. On the upper and under sides there are two ligaments, which run along the surface, and serve to purse up this gut, which with a valve on the inside serve to keep the aliment from passing off too hastily, that the nutricious juice may be extracted. The straight gut runs directly along from the colon to the fundament, and is half a yard long. The guts have the same coats as the gullet, but are considerably thick-

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er in theſe laſt-mentioned, and like it are always moiſtened by the liquor proceeding from the glands.

The guts are faſtened to the back by the meſentery, which is about nine inches broad from the guts to the back. It takes its riſe from the third vertebræ of the loins, and conſiſts of two membranes, which are full of ſmall glands and blood-veſſels, and is formed by the doubling of the *peritonæum*. It forms ſeveral folds along its circumference, not unlike a ruffle, to which the ſmall guts are connected.

Having thus taken notice of the *inteſtinal canal*, and its ſeveral parts, it will not be improper to make ſome obſervations on the *progreſs of the chyle*. If you open a dog that has been juſt killed two or three hours after he has been fed, you will ſee on the guts, eſpecially thoſe that are ſmall, a great number of little white veſſels called *lacteals*, which glide between the two membranes of the meſentery, and communicating with each other, advance to the glandulous body placed in the middle. From this ſubſtance other lacteal veins proceed, which differ nothing from the former, but in being fewer in number, and ſomewhat more large. Theſe are called *ſecondary lacteals*, and are diſcharged into a cellular and membranous bag, generally placed on the firſt vertebræ of the loins, and is hid in part of the right appendix of the diaphragm. This is called the reſervatory of the chyle. From this reſervatory the thoracic duct proceeds, which runs along the *vertebræ* of the back, and towards the middle of the back turns to the left, and empties itſelf into a large vein called the *left ſubclavian*.

The *lacteal veins* are not only to be met with on the ſmall inteſtines, but alſo on the large, which ſhow that an animal may be kept alive by nouriſhing clyſters only.

The *liver* is a conglomerate gland of a very large ſize, of a reddiſh brown colour, and of a pretty firm conſiſtence. It makes up a great part of the right ſide

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and a portion of the middle epigaſtric region, immediately below the diaphragm or midriff. In a horſe it is divided into four lobes, to render it flexible in all violent motions, and ſo preſerve it from danger. Of theſe the right lobe is much the largeſt, and is called the great lobe of the liver.

The *ſhape* of the *liver* is not regular, but accommodates its conformation to the adjacent parts. It is convex and ſmooth on the upper ſide, to tally with the diaphragm, to which it is connected, and whoſe motions it follows. Its inferior ſurface is concave, and unequal, having eminencies and cavities which anſwer to the ſpaces that are between the organs. The eminencies belong to the great lobe of the liver, to which the antients gave the name of *portæ*.

The liver is connected to the adjacent parts, but chiefly to the midriff, by means of four ligaments. Some reckon the umbilical veins a ligament, but this is very much doubted by others.

The liver is covered by a thin membrane, which however may be divided into two *laminæ*, between which there is a great number of lymphatic veſſels, which are obſervable both on the convex and concave ſurface. The internal lamina ſeems to penetrate the ſubſtance of the liver, and to divide it into a great number of ſmall lobes, which may be eaſily diſtinguiſhed in a hog.

The ſubſtance of the liver is an aſſemblage of a great number of ſmall veſſels of every kind, which appear to be diſtributed to a great number of vehicles or ſmall bodies, called of late pulpous grains. Theſe veſſels thus diſtributed, may be diſtinguiſhed into thoſe that carry ſome liquor, and into thoſe that bring it back. The firſt are the ramifications of the *hepatic artery*, of the *vena portæ*, and of the *hepatic nerves*.

The *vena portæ* is a conſiderable trunk of a vein formed by two principal branches, one of which receives

ceives the blood which comes from the ſpleen, the pancreas, and one part of the ſtomach. It is called the *ſplenetic vein* The other proceeds from the inteſtines and the meſentery, and is called the *meſenteric.* This trunk of a vein penetrates the liver on the concave ſide; but, before its entry, forms two other branches, one to the right, and the other to the left. Likewiſe there are many leſſer branches, which enter the veſicles of the liver. The other veſſels which belong to the veſicles are branches of the veins, which correſpond with the *vena cava*, and diſcharge the remainder of the blood which the *vena porta* has depoſited in the liver. The union of theſe branches form three veins called the *hepatic veins*, which terminate in the trunk of the lower *vena cava* immediately below the diaphragm.

The *lymphatic veins* of the liver may be ſeen on both ſides, where they form a wonderful kind of net-work. Theſe veins generally empty themſelves into the reſervoir or receptacle of the chyle. The pulpous veins have each an excretory duct which communicate with each other in the ſubſtance of the liver, and are commonly called the *biliary pores.* When theſe ducts are united, they form a large one called the *hepatic duct*, which diſcharges the bile into the ſmall gut near the ſtomach. It is proportionably larger in horſes than in other animals, becauſe they have no gall-bladder. Some ſay this is wanting becauſe it might be hurt by violent motions; but this cannot be the caſe, becauſe many animals that are as ſubject to as violent exerciſe as a horſe, are not without a gall-bladder; and therefore I ſhall not pretend to gueſs at the reaſon, or why a large and conſtant diſcharge of the bile is required in a horſe more than any other creature that feeds in the ſame manner.

The *uſe* of the *liver* is to ſeparate this gall or bile already mentioned, and there is reaſon to believe it is brought to the liver by the *vena porta.* The gall is a yellow, bitter liquor, of a pretty fluid conſiſtence compoſed

poſed not only of a ſeroſity and ſalts, but alſo of unctuous particles, which form a liquor of a ſoapy nature, and nearly of the ſame taſte, and is very uſeful to take old ſpots out of garments.

The gall being ſeparated in the liver, is taken up by the biliary pores, then runs into the hepatic duct, and is conſtantly diſcharged into the gut abovementioned. It ſerves to correct the aliment, and to prepare the chyle.

The *pancreas* is a conglomerate gland, of a very pale red, and of a pretty thick conſiſtence. It is ſeated in the epigaſtric region, tranſverſely, immediately below the ſtomach, reaching from the ſmall gut to the ſpleen, to which it is united. The ſituation of the *pancreas* is ſuch, that it may be reckoned to have two faces, an upper and a lower, two edges, the anterior and the poſterior, and two extremities, the one to the right, and the other to the left; that to the right, which is connected to the gut, is moſt conſiderable.

The *pancreas* is covered with two membranes, the one common, and the other proper. The common conſiſts of the two leaves of the *meſocolon*, between which the pancreas is ſeated. The proper membrane immediately covers its ſubſtance, and is compoſed of many glandulous grains, beſet with a vaſt number of veſſels, whereof ſome carry a fluid to the pancreas, and ſome bring one back from thence. The former are the arteries and nerves; the latter are the ſanguinary and lymphatic veins, as well as the excretory ducts of the glands.

The *excretory ducts* of the pancreas are very numerous, perhaps as many as the glandulous grains of which it is compoſed. All theſe ducts unite with each other, and from their union reſults one common duct, which carries a fluid from them all. It is called the *pancreatic duct*, and runs all along the pancreas, through the middle of its length, and empties itſelf into the ſmall gut.

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The *uſe* of the *pancreas* is to ſeparate a fluid called the *pancreatic juice*, of the nature of *ſaliva*, and ſerves conjointly with the gall to bring the chyle to perfection.

The *ſpleen* conſiſts of a ſoftiſh ſubſtance which may be readily extended, and is of a bluiſh colour a little inclining to the red. It is ſeated obliquely in the left hypochondrium under the diaphragm or midriff, and immediately above the left kidney. Its ſhape is of a longiſh tongue, and flattiſh.

The ſpleen is kept in its ſituation not only by reſting on the adjacent viſcera, but alſo by membranous ligaments which tie it to the diaphragm, and ſometimes to the ſtomach itſelf, as alſo to the colon and the left kidney by means of the caul and the blood-veſſels. It has two faces; that turned towards the ſtomach is unequally concave, and that turned towards the ribs, which is convex.

The principal artery of the ſpleen proceeds from the *cœlic*, the vein empties itſelf into the vena portæ. The nerves are very numerous, and form the *ſplenetic plexus*. All theſe, when they enter into the ſpleen, are divided and ſubdivided into a great number of ramifications, and accompany each other to the laſt extremities of their diviſions. They are contained in the common cellular capſule. The blood is extravaſated among all theſe veſſels, and kept in a web like cotton, which is very fine, and ſpread throughout the whole extent of the ſpleen, and terminates in almoſt imperceptible cells which communicate with each other.

The *uſe* of the *ſpleen* is very hard to determine: however it is probable the blood is detained by this means a great while in the ſpleen, in order to prepare it for the ſeparation of the bile, which is afterwards to be performed in the liver.

The *capſulæ atrabiliares*, called by ſome the renal glands, are two glandulous bodies ſeated on each

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ſide, a little obliquely on the upper and more internal part of the kidney, and are joined to it by a fine cellular web, and are covered by the external tegument of the kidney itſelf, called the adipous membrane. The ſubſtance of theſe renal glands is ſoft and ſpungy, covered with a fine membrane, and their colour is yellowiſh. In a *fætus* they are as large as the kidneys. They have a cavity which contains a yellowiſh liquor, though by ſome ſaid to be black. The uſe of theſe is hitherto unknown.

The *kidneys* are two conglomerate glands of a firm conſiſtence, and of a reddiſh brown colour. They are ſeated in the region of the loins, on the outſide of the peritonæum and within its cellular web, one on the right end, and the other on the left, between the laſt of the falſe ribs and the bone called the *ileum*. The right lies upon the lower part of the liver, and the other under the ſpleen, which laſt is commonly placed higher than the other. The right kidney is ſomewhat triangular, the left oval, with the higher part bigger than the lower.

The *arteries* belonging to the kidneys, are called the *emulgent arteries*, and are generally two, one for each kidney. The veins in the kidney accompany the arteries, and when they are united into one trunk, they are called the *emulgent veins*. A principal veſſel belonging to the kidney is called the *ureter*. It is a membranous pipe which receives the urine, as it is ſeparated by the kidney, to carry it to the bladder.

The kidney has two coverings; the firſt conſiſts of the cellular web of the *peritonæum*, and generally contains a great deal of fat. This being removed, you may diſcover the proper tegument or covering of the kidney, which it ſurrounds. It conſiſts of two *laminæ*, which are united by a fine cellular web, and between theſe the lymphatic veſſels creep along.

The kidney is compoſed of three different ſubſtances: the firſt is the *cortical*, which conſiſts of a

great number of blood and nervous veſſels with glandulous grains. The ſecond is *tubulous*, and is compoſed of urinary pipes, which change into the third ſubſtance called the *papillary*, becauſe it ends in ten or twelve papillæ full of ſmall holes, which open into the pelvis or baſon. This laſt is the membranous cavity of the kidney, ſending forth tubes or pipes which embrace the papillæ like funnels.

The *ureters* are membranous canals or pipes which reach from the kidneys to the bladder, wherein they are inſerted obliquely above its neck. The coats are ſuppoſed to be like thoſe of the guts.

The *bladder* is a membranous bag, whoſe ſituation is well known, and is connected to the peritonæum only by its poſterior and ſuperior part, and therefore may be opened without hurting that part. The fore and lower part is called the neck. Its coats, like the inteſtines, are common, muſcular, and nervous. This laſt being the inner, is exceeding ſenſible.

Next the neck of the bladder is the *urethra*, through which the urine is conveyed out of the body, and is much longer in horſes than in mares. The bladder is connected in horſes to the rectum or ſtraight gut, and the ſeminal veſſels; in mares to the vagina, and in both to the os pubis, by ligamentous and fleſhy fibres.

In the middle of the upper part there is a ligamentous chord called the *urachus*, which terminates at the navel, and is a continuation of the membranes of the bladder. The kidneys ſeparate the excrementitious fluid from the blood, called the *urine*, which paſſes through the papillæ into the funnels, and from thence into the baſon, and is diſcharged by the ureter into the bladder, where it remains for ſome time by the help of a ſphincter which ſurrounds its neck, and ſtops its paſſage, till an uneaſineſs happens, which cauſes a contraction of its muſcular coat; then, with the aſſiſtance of the muſcles of the belly and the midriff, the reſiſtance

tance of the ſphincter is overpowered, and ſo the urine eſcapes. The urine is much of the ſame nature as the ſweat, and they have ſuch a relation to one another, that when the one is increaſed, the other is diminiſhed.

The firſt thing to be conſidered in the *organs of generation* are the *teſticles* or *ſtones*, whoſe ſituation is well known. Their ſhape is oval, a little flatted on the ſides. Their coverings are common and proper: the common is the ſkin in which they are contained, which is divided into two parts, the one right and the other left, which outwardly appears like a ſeam. The proper membranes are, firſt, the *vaginal*, which conſiſt of ſeveral membranous cells, and is a continuation of the cellular web of the peritonæum, and covers the whole teſticle as well as its veſſels. The ſecond is a reddiſh membrane which adheres cloſe to the former, and is only an expanſion of a ligament. Under the vaginal coat there is a bag proper to each teſticle, which ſurrounds them, and is only connected to the *epididymes*. Laſtly, the *albugineous*, which is ſtrong, and adheres cloſely to the ſubſtance of the teſticles. It receives the ſpermatic veſſels, and tranſmits them to the teſtes. The proper veſſels are the *ſpermatic arteries*, which ariſe by a ſmall beginning from the great artery, and the *ſpermatic veins*.

The *epididymes* are two, one to each teſticle, which lie on the ſuperior part in the ſhape of a caterpillar. Their ſubſtance is vaſculous, and all the veſſels open into one duct called the *vas deferens*, by which it tranſmits the ſeed which it receives from the teſtes.

The *vas deferens* is a whitiſh pipe which looks like a nerve, and reaches to the ſeminal veſſels and the urethra. Their uſe is to convey the ſeed to the ſeminal veſſels and to the urethra itſelf at the time of covering a mare.

The *ſeminal veſſels* are ſeated under the bladder, near its neck, and are divided into various cells, which communicate with each other. Each veſſels has an

excretory duct, which opens with a double orifice into the urethra on the under ſide, near the neck of the bladder.

The *yard* is the chief organ of generation, whoſe ſhape and ſize are well known. It begins with two bodies which unite under the os pubis, to which they are connected by a ligament. The inner texture is ſpungy, on the under part of which is the urethra for the paſſage of the urine before-mentioned. It is lined with a membrane full of ſmall glands, which ſeparate a liquor that defends it from the acrimony of the urine.

The parts of generation of a mare are analogous to thoſe of a woman; and that they have a clitoris is plain from an hermaphrodite of this ſpecies who was carried about for a ſhow. The bottom of the womb is divided into two parts, called horns, as in other quadrupedes. But I need not be more particular in deſcribing theſe parts, becauſe, if due care be taken, they ſeldom or never come under the conſideration of a farrier.

Of the Parts contained in the THORAX *or* CHEST.

THE ſecond cavity of the trunk of the body is the *cheſt*, which is bounded on the lower part by the midriff, on the upper by the two firſt true ribs with the collar bones, on the fore part by the ſternum and the extremities of the ribs, and on the back part by the extremities of the ribs that join to the back-bone, and by the back-bone itſelf.

The proper *containing parts* of the cheſt are boney, fleſhy, and membranous. The *boney parts* are the *ribs*, the *vertebræ* of the back, and the *ſternum*. The *fleſhy* are the *intercoſtal muſcles*, the *ſternocoſtal*, and the *midriff*. Among the *membranous* the *pleura* is chief.

The *parts contained* are the *heart* and the *lungs*.

The

The *pleura* is a membrane of a close texture, which lines the chest throughout its whole extent, and supplies the other parts contained therein with a covering. The internal surface of the *pleura* is smooth and polished, and always moist with a serosity that oozes from the pores, and is covered outwardly with a cellular web like the peritonæum. The *pleura* makes a fold or doubling at the vertebræ of the back, which terminates the whole length of the sternum. The doubling is called the *mediastinum*. It separates the chest into two parts, the one right and the other left. It does not adhere to the middle of the sternum, but a little to the left, whence the right cavity is largest.

The two *laminæ*, whereof the mediastinum consists, are not separated from each other immediately behind the sternum in the fore part, but afterwards recede from each other to make room for several parts, as the *pericardium*, part of the *windpipe*, the *gullet*, the *thoracic duct*, &c. Each *lamina* forms a kind of a purse for each lobe of the lungs.

The *mediastinum* serves to hinder the passage of any fluid shed on one side of the breast from passing into the other. This partition secures a free breathing on one side, if the chest should be opened on the other. It also hinders one side of the lungs from resting upon the other, when a horse lies on one side.

The *thymus* is a glandulous body seated in the upper part of the thorax, immediately under the sternum: its use is uncertain.

The *pericardium* is a membranous purse of a close texture, which immediately incloses the heart, and which is placed between the two leaves of the mediastinum; the figure is like that of the heart, but leaves room enough for its motions. It is connected to the mediastinum, to the diaphragm, and to the great vessels of the heart. It contains a liquor to lubricate the surface of the heart, and serves to keep it in its proper place.

The *heart* is a hollow muſcle of a conic figure, which is the principal organ of the circulation of the blood. The larger part is called the *baſis*, the ſmaller the *point*. It inclines to the left, where its beating may be perceived. At the baſis of the heart are two ſmall purſes which ſeem to be appendices, and are called the right and left *auricles* of the heart. The right is the largeſt. They have each two orifices, whereof one anſwers to the vein which diſcharges itſelf therein, and the other to its proper ventricle. Each auricle conſiſts of a double row of ſemicircular fleſhy fibres, and are ſtrengthened by others in the ſhapes of columns, between which there are conſiderable ſpaces. Theſe contract when the ventricles are dilated, and dilate when the ventricles are contracted; they being antagoniſt muſcles to each other.

The *ventricles* are two remarkable cavities; the one is the right, and the other the left. The right is thinner, weaker, and larger than the left. It receives the blood from the vena cava and the right auricles, and drives it into the pulmonary artery and the lungs. The left is ſtronger and thicker, and not ſo large. It receives the blood from the pulmonary vein and the left auricle, and forces it into the great artery.

The *columnæ carneæ*, or fleſhy columns, are in the ventricles as well as the auricles; and are ſo many ſmall muſcles, by the concourſe of whoſe membranous fibres, are formed peculiar membranes, called valves, placed at the orifices of the auricles. The columns run tranſverſely from one ſide of the ventricle to the other, partly that they may aſſiſt the contraction of the heart in the *ſyſtole*, and partly to prevent too great a dilatation in the *diaſtole*.

The *valves* are of three kinds: *tricuſpidal*, which are three, and placed at the orifice of the right ventricle, which anſwers to the auricle on the ſame ſide. *Mitral*, which are ſeated in the left ventricle where it communicates with the auricle, preventing the return-

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ing of the blood into the heart from the veins. The *ſemilunar*, which are three, and are placed at the beginning of the great, as alſo at the pulmonary artery, to hinder the return of the blood from the arteries into the heart.

The *muſcular fibres* of the heart are in ſome places ſtraight, in others ſpiral. Theſe are of a double order; the *external*, which run from the baſis and tendon of the heart towards the left; the *internal*, which run towards the right, and interſect the former. When they act, they conſtringe their cavities regularly, and expel the blood, which is called the *ſyſtole*. When they are relaxed, the two ventricles are dilated; this is called the *diaſtole*. The *auricles* are the two hollow muſcles which are the antagoniſts of the ventricles, for they contract when the ventricles are dilated, and when the ventricles contract they are dilated, as was obſerved before.

The *blood-veſſels* of the heart are of two kinds; the proper veins and arteries, called the *coronary*, diſtributed through the heart; and the common, of which two are veins, the *vena cava*, and the *pulmonary vein:* and two arteries, the *great artery*, and the *pulmonary artery*.

The *uſe* of the *heart* is to promote the circulation of the blood; for it receives the blood from all parts of the body by the veins, and by its contraction ſends it back to all parts of the body by the arteries. Upon theſe not only the functions of the body depend, but even life itſelf.

The *lungs*, commonly called the *lights*, is the largeſt viſcus in the cheſt, and is divided into two parts or lobes, one on each ſide of the mediaſtinum, and contain the heart in the middle. They are not ſubdivided in a horſe ſo much as in other quadrupedes. Each lobe is divided into ſmall cells, which are the extremities of the *aſpera arteria*, whence the ſubſtance is veſiculous and ſpungy.

The lungs are not only connected to the ſternum and to the vertebræ of the back by the mediaſtinum, and to the heart by its veſſels, but alſo to the pharynx and the tongue by means of the windpipe. There are alſo two membranous ligaments, which advancing from the poſterior edge of each lobe, terminate in the vertebræ of the back, as far as the diaphragm.

The lungs are covered with a membrane which is continued to the pleura. This membrane has two laminæ, the internal of which forms ſeveral partitions which penetrate into the ſubſtance of the lungs, and divide it into innumerable ſmall bodies called *lobules*, of various angular figures. Theſe lobules have ſpaces between them, in which the nerves and blood-veſſels lie, which make ramifications on the external ſurface of the lobules. There is likewiſe a cellular web in theſe ſpaces, which ſurrounds the nervous and blood-veſſels.

The air cannot paſs from one of the lobules into another, but only from the lobules into the cells which ſurround the blood-veſſels which lie therein, and back from theſe ſpaces or cells into the lobules. There are therefore two ſorts of cells, the *bronchic cells*, of which the lobules conſiſt, and the *vaſcular cells*, which ſurround the veſſels.

The *trachea arteria*, or *windpipe*, begins at the bottom of the mouth, and runs along the middle and anterior part of the neck, and goes to be diſtributed into the lungs by a great number of ramifications. The upper part of this is called the *larynx*, and the ramifications in the lungs the *bronchia*. The *trachea arteria* is a pipe which is partly cartilaginous, and partly membranous; the former is the fore part, and the latter is the hind part. The cartilages whereof this pipe is compoſed do not form an entire circle, but want about a third, and are ſmall at their extremities. Theſe cartilages have a tranſverſe ſituation, and are equally diſtant from each other. The ſpace between each is

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occupied by a ligamentous, elaſtic membrane, which is connected to each ring. Theſe rings are compleated by a thick membrane, with ſeveral diſtinct glandulous grains on the outſide.

This pipe is covered inwardly with a membrane which is wrinkled according to its length, and is continued to the bronchia. This membrane is nervous, and has a very exquiſite ſenſe. It is continually moiſtened on the inſide by means of a great number of glands lying behind it; beyond which there are two plans of fleſhy fibres, the one circular, the other longitudinal. The whole is covered outwardly with a coat which ſeems to be a continuation of the membrane of the lungs. The ramifications of the pulmonary arteries are more numerous and are larger than thoſe of the veins, contrary to the mechaniſm of the reſt of the body. There are *lymphatic* veins which may readily be diſcovered on the lungs of a horſe ſoon after death.

The *diaphragm* or midriff is a muſcular partition, which divides the cheſt from the lower belly: it has an oblique ſituation, and is convex towards the cheſt. It has two muſcles, of which the ſuperior is the largeſt, towards the middle of which there is a tendinous part. The fleſhy fibres which ſurround it are connected to the enſiform cartilage, to the cartilages of the laſt true ribs, and to all the falſe, advancing to the boney part of ſome of the ribs.

The lower muſcle of the diaphragm is leſs than the upper, and more thick. It is connected above to the hollow part of the tendinous or the nervous center, from whence it proceeds to form two wings on the right and left, croſſing each other. They run two fingers breadth before they unite, and leave an oval ſpace between them, through which the œſophagus or gullet paſſes. Then theſe portions unite, and croſſing each other, divide again to leave a paſſage for the lower great artery and the thoracic duct. They terminate with flat tendons in the two upper vertebræ of the

the loins. Theſe are called the two appendices of the diaphragm.

On the right ſide of the nervous center of the diaphragm there is a round hole for the lower trunk of the vena cava. The upper part has a covering for the pleura, and the lower for the peritonæum. The uſe of the diaphragm is to aſſiſt the breathing; for in inſpiration, or when a horſe draws in his breath, it is moved downwards, and in reſpiration upwards, or into the cavity of the cheſt. It likewiſe promotes the motion of the contents of the abdomen, that is, the ſtomach, guts, liver, ſpleen, chyle, gall, &c. It helps the expulſion of the excrements, urine and fætus.

Of the BRAIN, NERVES, *and* FIVE SENSES.

THE whole maſs contained in the cavity of the ſkull is called the *brain*, which is covered with two membranes; the *dura mater* and the *pia mater*. This maſs comprehends the *brain*, the *cerebellum*, and the *medulla oblongata*. They are all joined together, and are ſeated in ſuch a manner that the brain covers the cerebellum and the medulla oblongata. The brain is larger than the other two.

The *dura mater* is a thick membrane of a cloſe texture, which lines the internal ſurface of the ſkull, and is cloſely connected therewith, not only in its baſis, but in the parts which anſwer to the ſutures, and throughout the reſt of the extent. It conſiſts of two laminæ, whoſe fibres croſs each other obliquely: the one is called the internal, the other external. It has three proceſſes, the firſt named *falx* begins at the criſta galli, and runs backward under the ſagittal ſuture to the cerebellum, and divides the cerebrum into two hemiſpheres. The ſecond proceſs runs from the lower and back part of the former to the upper edge

of

of the os petroſum, and ſuſtains the poſterior lobes of the cerebrum, that they might not compreſs the cerebellum. The third is very ſmall, and runs down the laſt great proceſs to the great foramen of the ſkull.

The *ſinuſes* of the *dura mater* are hollow cavities in this membrane. They have been uſually ſaid to be four: the *longitudinal*, the *laterals*, and the *rectus* or right. The longitudinal runs along the upper edge of the falx from a hole immediately under the apophyſis of the criſta galli, and is continued along the ſpine of the coronal, and of the ſagittal ſuture. The lateral ſinuſes begin at the end of the longitudinal, and are continued to the right and left into the gutters of the occipital, and terminate in the internal jugular veins. The rectus is the ſhorteſt of all the ſinuſes, and runs along the juncture of the falx and the ſecond proceſs, and terminates at the end of the longitudinal ſinus. The longitudinal ſinus goes generally into one lateral ſinus, and the rectus into the other.

The *pia mater* is compoſed of two laminæ, between which the veſſels run. It has a great number of foldings which inſinuate themſelves into the furrows which are obſervable on the ſurface of the brain and cerebellum. Some mention another membrane of the brain, called the *arachnoide*; but this is nothing elſe but the external lamina of the pia mater ſeparated from the internal, and is ſeldom ſeen but on the medulla oblongata and the ſpinal marrow.

The *brain*, as divided into two hemiſpheres, is alſo diſtinguiſhed into two ſubſtanes, the external and the internal; the firſt is the cortical, and is aſh-coloured; the ſecond is the white medullary ſubſtance. On the ſurface of the cortical ſubſtance there are ſeveral furrows, whoſe irregular directions are not unlike the circumvolutions of the ſmall guts.

If you draw the cortical ſubſtance of the brain a little aſunder, you will ſee a white body which is the medullary ſubſtance, and in this place is called the callous

lous body, becauſe it is harder than in other parts.

Any other part of the brain may be hurt without killing the animal, but a wound in this part produces immediate death, whence this is ſuppoſed to be the ſeat of the ſoul, where the operations of the mind are performed. It ſeems to be compoſed of ſeveral fine threads, which run tranſverſely from one hemiſphere to the other. In the middle is a kind of ſuture which ſeems to be compoſed of two ſmall white cords. The callous body is continued to the oval centre, a part of the medullary ſubſtance which appears after a part of two hemiſpheres has been cut off horizontally throughout the whole extent, nearly on a level with the callous body.

The two *upper ventricles* are two cavities in the ſubſtance of the brain, on the right and left, and they generally take up the whole extent of the two hemiſpheres of the brain. They each repreſent a horſe-ſhoe, whoſe horns are turned towards the fore part of the ſkull. Theſe ventricles are ſeparated from each other by a membrane called the *ſeptum lucidum*, which is connected above to the whole length of the callous body, and below to one of the pillars of the fornix.

When the callous body is raiſed, the *fornix* may be ſeen, which is like an arch with three pillars, and a part of the *plexus choroides*. Two of the pillars are placed backwards, and the other in the middle between the ventricles, under the callous body. The fornix is connected to the adjacent parts by the extremities of the pillars, and by the upper part of the fore-pillar. All the lower ſurface lies on the adjacent parts, in ſuch a manner, that the ſeroſity in one ventricle may glide into the other, under the fore pillar.

The *choroide plexus* is a web of a great number of arteries and veins, diſtributed on a very thin membrane. The veins of this membrane unload themſelves into the great ſinus. This being raiſed, ſeveral eminencies and cavities are received into the ventricles.

The

The chief eminencies are the ſtirated or channelled bodies, and the bed of the optic nerves.

The external ſubſtance of the channelled body is aſh-coloured, and the inward is divided into ſeveral white rays, between which the aſh-coloured part inſinuates. Hence it has its name, becauſe the white rays make it look like the channels of fluted columns.

The beds of the optic nerves are almoſt of an oval form, whitiſh without, and greyiſh within. They are joined to the whole length of their upper and lateral part, and are divided every where elſe. This ſpace between them is called the third ventricle. Behind the beds of the optic nerves are eminencies called the nates and teſtes; and between the beds of the optic nerves and the nates the pineal gland is ſeated, formerly thought to be the ſeat of the ſoul. At the entrance of the third ventricle, there is an oval cleft, formerly called the *vulva*, but now the anterior common aperture, becauſe it communicates with the two firſt ventricles. Towards the back part is another aperture, called the *anus*, which anſwers to a fourth ventricle placed under the cerebellum, from whence it receives the ſuperabundant ſeroſities to tranſmit them into the third, which are diſcharged into the pituitary gland placed at the pit of the ſpheroid, and that of the ſaddle.

The *cerebellum* is ſeated under the poſterior lobes of the brain, and is diſtinguiſhed from it by a partition called the tent. The figure is almoſt round, and its poſterior part is divided into two lobes. It is compoſed, as well as the brain, of an aſh-coloured cortical and medullary ſubſtance. The furrows on the ſurface do not wind ſo much as thoſe of the brain, but are parallel to each other, and are continued from one ſide of the cerebullum to the other: for this ſeems to be divided into ſeveral laminæ laid one againſt the other, like the plaits of a fan. On the fore and back part are

two

two worm-like proceſſes, ſo called on account of their ſhape.

The *cerebellum* being opened lengthways, its white ſubſtance repreſents a kind of a tree, by ſome called the *tree of life*. This opening likewiſe diſcovers the fourth ventricle, the extremity of which is called the *calamus ſcriptorius*, becauſe it is hollow like a gooſe-quill.

The third part of the brain is called the *medulla oblongata*, or the *oblong marrow*, which is ſeated under the brain and the cerebellum, to which it communicates by bundles of white fibres, which ſeem to be the reunion of all thoſe that enter into their compoſition. There are five eminencies on the lower part, from which ten pair of nerves have their origin. The moſt conſiderable of theſe eminencies is called the *annular proceſs*, the ſecond and third are called *pyramidal*, and the laſt the *olivary*.

Immediately beyond theſe proceſſes the *medulla oblongata* ſeems to be divided into two lateral parts, by means of two pretty deep grooves; whereof one is in the anterior and lower part, and the other in the poſterior and upper part. If you draw the ſides of theſe grooves gently aſunder, you will find an interweaving croſſed by ſeveral medullary cords, which run obliquely from one ſide to the other. Hence the reaſon appears why the palſy, which is cauſed by a fault of the brain, affects the limbs on the ſide contrary to the part of the brain which is faulty.

The *pituitary gland* is in ſize and ſhape like a kidney-bean. It is of a ſpungy ſubſtance, and ſeated under the ſaddle of the ſpheroid, between the two laminæ of the dura mater, the internal of which covers it above, and has a hole over againſt the middle of this gland for the paſſage of the funnel. By this duct, it receives the ſeroſity from the ventricles, and diſcharges it into the ſpheroidal reſervoirs, where mixing with the blood, it is taken up by the ſinus anſwering thereto, and conveyed into the internal jugulars.

The

The *medulla oblongata*, or the oblong marrow, and the ſpinal marrow, are the origin of ſeveral nerves which are diſtinguiſhed by pairs; whereof ten proceed from the oblong marrow, and in horſes thirty-ſeven from the ſpinal marrow.

The firſt pair of nerves of the oblong marrow are the *olfactory* or *ſmelling nerves*. They paſs through the holes of the *os cribiforme*, and are diſtributed on the inward membrane of the noſe. The ſecond pair are the *optic*, which proceed from the beds of the optic nerves, and paſſing through the optic holes, are beſtowed on the eyes, forming the membrane called the *retina*.

The third are the *movers of the eye*. They ariſe from the annular proceſs, and are loſt in the muſcles of the eye and eyelids. The fourth are the *pathetic*, and belong to the great oblique muſcle of the eye. They paſs out of the ſkull through a cleft of the ſpheroidal bone. The fifth proceeds from the anterior part of the oblong marrow, and is diſtributed to the eye, to the upper and lower jaw. Theſe branches are called the *ophthalmic*, the *ſuperior maxillary*, and the *inferior maxillary*.

The ſixth pair ariſe from behind the annular proceſs, and are loſt in the muſcle called the *abductor oculi*, paſſing as the two former through the cleft of the ſpheroidal bone. The ſeventh is the *auditory*. It ariſes from the lateral parts of the annular proceſs. It has two parts; the one ſoft, which is loſt in the inward part of the ear; and the other hard, which is diſtributed on the external ear and the face.

The eighth is the *par vagum*, or the *wandering pair*: they proceed from the olivary proceſſes, and are diſtributed on the gullet, the windpipe, the lungs, the ſtomach, &c. The ninth pair proceed from between the pyramidal and olivary proceſſes, and are chiefly diſtributed on the tongue. The tenth ariſe from behind

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the olivary proceſſes, and are diſtributed on the ſmall ſtraight muſcles called the extenders of the head.

The *ſpinal marrow* is only a continuation of the oblong marrow, and is compoſed of two ſubſtances, the inward of which is white, and the outward of an aſh-colour. It is covered with four coats, the outward of which is thick, and adheres cloſe to the internal ſurface of the canal of the vertebræ. The ſecond is a continuation of the dura mater. Between theſe two coats there is a fatty ſubſtance. The third is the *arachnoide*; and the fourth is a continuation of the pia mater. This immediately covers the ſpinal marrow.

The *nerves* which proceed from the ſpinal marrow, as was obſerved before, are thirty-ſeven pair, whereof the neck has ſeven, which are diſperſed partly on the muſcles of the face, partly on the muſcles of the neck, and partly on thoſe of the ſhoulders and forelegs; which being united with a branch from the ſecond and fourth, form a nerve called the phrenic nerve, which is diſtributed on the diaphragm, the pericardium, and other parts within the cheſt.

There are ſeventeen pair which proceed from the vertebræ of the back; the two firſt of which communicate with the lowermoſt of the neck, ſending forth twigs to the neck and ſhoulders. The ſecond pair, as well as the reſt, ſend twigs to the intercoſtal nerves, by which means they communicate with all the nerves of the bowels in the cheſt and lower belly. The other branches are chiefly ſpent on the intercoſtal muſcles, the muſcles of the back, and a few branches paſs to the abdomen.

Thirteen pair of nerves proceed from the vertebræ of the loins and os ſacrum. Theſe are chiefly diſperſed on the muſcles of the loins, hips, and hindlegs. The anterior branches of the firſt pair of the loins are diſtributed on the muſcles of the diaphragm. Some branches are beſtowed on the pſoas muſcle, and the poſterior branches go to the longiſſimus dorſi. The

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penis of a horſe and the matrix of a mare receive branches from the nerves of the loins, and the teſticles and tail from the os ſacrum.

Of the USE *of the* BRAIN.

The brain may be juſtly called the *primum mobile*, or the firſt mover of the whole body. Therefore we cannot wonder, that the author of nature has taken ſuch care to preſerve it from external injuries, by incloſing it in a boney caſe, and by ſurrounding it with two membranes.

The *dura mater* keeps it from being hurt by the inequalities of the ſkull; and one of its foldings or partitions, as has been obſerved, prevents one of the hemiſpheres from lying heavy on the other, when the head leans on one ſide; and the other, which is poſterior, prevents the hinder lobes of the brain from preſſing on the cerebellum. The ſinus within this membrane not only ſerves to render the circulation of the blood more free, but alſo by its winding, hinders the blood from paſſing to the heart with too great a rapidity.

The *pia mater* is very uſeful to ſupport the blood-veſſels which penetrate into the ſoft ſubſtance of the brain, eſpecially the cortical, which, according to ſome, ſerves to ſecrete the animal ſpirits, which paſs from thence into the medullary ſubſtance, formed by the union of the excretory canals of the glands of the cortical ſubſtance, and is afterwards diſtributed to the nerves in all parts of the body. For this purpoſe there is thought to be a common receptacle of the ſpirits called the *emporium*. This opinion ſeems to be eſtabliſhed by the following experiment. A conſiderable quantity of the cortical part of the brain was taken off with a knife, notwithſtanding which, the man continued to move as if his brain had been entire. Likewiſe, when perſons have been wounded in the head,

and a part of the brain has been carried away, they have no paralytic diſorder in any part of their bodies.

By the aſſiſtance of the nerves, the impreſſion of external objects is tranſmitted to the brain, ariſing from a motion excited therein. The nerves may be ſhaken or put in motion at their origin, at their extremities, and in the interjacent parts. When the nerves are ſhaken at their origin, by the motion of the animal ſpirits, the impreſſion made upon the mind is an idea. If it is performed in the middle parts, or in their extremities, and the motion is communicated to the mind, it is called ſenſation. This ſenſation will be either uneaſy or agreeable, according to the degree of the impreſſion made by external objects, that is, as they are either ſlight or violent. For the ſame reaſon we are to believe that the impreſſion which cauſes pain differs only in degree from that which produces tickling.

But it is proper to obſerve, that there are organs which receive the impreſſion of certain objects, by reaſon of which the mind has a particular ſenſation, while the other organs, though ſubject to impreſſions from the ſame objects, are not affected thereby. Theſe organs are five; the *eye*, the *ear*, the *noſe*, the *tongue*, and the *ſkin*. The eye perceives light and colours, the ear ſounds, the noſe ſmells, the tongue ſavours or taſtes, and the ſkin the different qualities of bodies, ſuch as ſmoothneſs, roughneſs and the like.

Some of the organs require the immediate application of the body thereto, as to the ſkin in feeling, to the tongue in taſting; but to ſee colours, to hear ſounds, and to ſmell odours, the body itſelf may be at a diſtance, though the light, the air, and particles flying off from bodies, immediately affect the eye, the ear and the noſe.

In conſequence of an impreſſion made by any body upon an organ, there is a ſenſation excited in the mind; and yet we are apt to confound ſome things together

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which we ought to diſtinguiſh: the action of the object, as the pricking of the ſkin with a thorn, the ſhaking of the fibres by that object, the ſenſation, and the judgment of the mind, which attributes that ſenſation to the part that is pricked; though it is certain it is the mind.

The *organs* of *feeling* are the *nervous papillæ* of the ſkin.

The *organ* of *taſting* is the *tongue.* This is a fleſhy body, capable of a great number of motions, and is ſeated in the cavity of the mouth, between the upper and lower jaws. The back part of the tongue is more thick and large than the fore part. Anatomiſts call it the baſis; it is cloſely connected to the os hyoides, to the larynx or top of the windpipe, and the pharynx or upper part of the gullet. The tongue is connected below by a membranous ligament called the bridle, and to the lower jaw, the os hyoides the ſtyloide proceſſes of the temporal bones by means of muſcles.

The upper part of the tongue is divided into two parts, by a line running along the middle of its length, which is called the *linea mediana.* The membrane which covers the tongue has its ſurface beſet with ſeveral eminencies, called the papillæ of the tongue, which are ſuppoſed to be the extremities of the nerves of this part, though ſome of them ſeem to be rather glandulous than nervous, ſuch as thoſe at the baſis of the tongue, which are the largeſt.

The tongue is chiefly compoſed of very ſoft fleſhy fibres, part of which belong to the tongue only, and part are a continuation of the muſcles. The firſt are called the intrinſic muſcles of the tongue, and conſiſt of two plains, which run ſuperficially on the upper part of the tongue, whereof the uppermoſt is compoſed of longitudinal fibres, and that underneath it of tranſverſe fibres, which in part are intermingled, and ſome of their extremities terminate at the edges of the

tongue, and others at the point. The fibres of the tongue, which are a continuation of the muſcles, are of three ſorts; longitudinal, tranſverſe, and vertical.

When a horſe is bled under the tongue, great care muſt be taken not to prick the artery, for then it will be difficult to ſtop the blood, unleſs the fungus, whoſe virtues are ſo lately known, or the puff-ball are applied to the part. Likewiſe the ſame caution muſt be uſed with regard to the bridle. The tongue of a horſe is likewiſe of great uſe in chewing and ſwallowing the aliment.

Taſting is a ſenſation excited by the different ſavours of aliments that are made uſe of: theſe being applied to the papillæ of the tongue, their moiſture diſſolves the ſalt of the aliments, which affecting the papillæ, excite the idea of taſting. This is aſſiſted by the papillæ of the palate; for men that have loſt their tongues have been capable of taſting.

The *noſe* is the *organ* of *ſmelling*. The noſe is lined with a membrane called the *pituitary membrane*, which likewiſe covers the cells of the ethmoide bone, the ſpungeous bones, or inferior laminæ of the noſe, and the internal ſides of the inward ſinuſes of the lachrymal ducts. It is beſet throughout its whole extent with glandulous grains, which ſupply it with a mucilaginous liquor that always keeps it moiſt. That part of this membrane which covers the cells of the ethmoide bone receives the fibres or threads of the firſt pair of nerves, and ſome branches of the fifth pair. Theſe receive the particles of odoriferous bodies, which excite a ſenſation that raiſes in the mind the idea of ſmelling.

The *eye* is the *organ* of *ſeeing*. It is univerſally known that the eye is ſeated in the cavity of the head, called the *orbit*, whoſe ſhape reſembles that of a cone. It is covered before with the eyelids. Theſe are prolongations of the ſkin, and have a cartilage which runs along their edge, in which the hairs are placed.

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They are covered with muſcles which ſerve to put them in motion. The angles or corners of the eye are the places where the lids unite; the greater of which are next the noſe. In the body of the cartilages abovementioned lie ſeveral ſebaceous glands, whoſe excretory ducts open on the edge of the eyelids.

There are two muſcles belonging to the eyelids; that which raiſes the upper called the *attollens*, and the *orbicular*, which ſerves to ſhut them. The *globe* of the *eye* is joined to the eyelids by a thin tranſparent membrane called the conjunctive, and vulgarly the white of the eye. This membrane is connected by one of its extremities to the circumference of the cornea, and by the other to the edges of the eyelids. It is likewiſe connected in its middle part to the edges of the orbit. It lines the inſide of the eyelids and the anterior part of the coat of the eye, called the *opake cornea*, which is covered with aponeuroſes of the ſtrait muſcles of the eye.

On the upper part of the globe of the eye, on the ſide of the leſſer angle, is a conglomerate gland called the lachrymal gland, whoſe excretory duct having croſſed the conjunctive, diſcharges the lachrymal lymph on the globe of the eye, which afterwards runs into the two apertures which are the greater angle of the eye, on the edge of the eyelids. Theſe apertures are called *lachrymal puncta*, or points, which anſwer to two ducts that unite into one common duct, and this communicates with a bag called the lachrymal ſack, ſeated on the ſide of the great angle of the eye, in a hollow channel on the ſide of the orbit, which is partly hid by the tendon of the orbicular muſcle. The lachrymal ſack anſwers to a membranous duct called the lachrymal duct, lodged in the naſal canal, which unloads itſelf into the noſe.

There is a ſmall red body in the greater angle of the eye, called the *lachrymal caruncle*, which is glandular, and ſecretes a fluid, like that of the glands, on

the edges of the eyelids. This was formerly, though improperly, called the lachrymal gland.

The *globe* of the eye is compoſed of membranes and humours. The common membranes are the *cornea*, the *uvea*, and the *retina:* the proper are the *arachnoide* and the *vitreous*. The humours are the *aqueous*, the *chryſtalline*, and the *vitreous*.

The *cornea* incloſes all the parts which make up the globe of the eye. It is tranſparent before, and opake through the reſt of its extent. The tranſparent part is called the *tranſparent cornea*; and the opake part the *ſelerotic*.

The ſecond membrane, called the *choroide*, is pierced before with a round hole called the *pupil*, the exterior part of which is called the *iris*. The pupil will contract in a great light, and dilate in obſcure or dark places, or as objects are near or diſtant. Theſe motions depend on fibres on the internal ſurface of the iris, ſome of which are circular, the others longitudinal. Some call this part of the choroide the *uvea*, and the remainder of this membrane the *choroide*. The whitiſh circle, which is cloſely connected to the ſelerotic on the edge of the tranſparent cornea, is called the *ciliary ligament*.

That part of the choroide comprehended between the ciliary ligament and the optic nerve, is compoſed of two very fine laminæ, the inner of which is ſpread over with a blackiſh humour.

The third membrane is called the *retina*. It lines the internal ſurface of the laſt mentioned membrane, and advances as far as the chryſtalline, where it terminates. It ſeems to be of a whitiſh ſubſtance, almoſt tranſparent, not much unlike a wet wafer; but when waſhed with water it appears to be a fine web with its veſſels. It is formed by the expanſion of the optic nerve, and is the immediate organ of viſion.

The *humours* of the eye are three. The firſt is the *aqueous*, and lies in the fore part of the eye, between the

the tranſparent cornea and the iris, and the ſpace between the peſterior part of the iris and cryſtalline humour. To which places they give the name of chambers. Thus there is the anterior and the poſterior chamber.

The ſecond humour is called the *cryſtalline*, which is ſeated immediately after the aqueous, behind the iris, and over-againſt the pupil. Its ſhape is lenticular, like the eye-glaſs of a ſmall teleſcope, and is of a pretty firm conſiſtence. Some think it has a particular covering called the *arachnoide*, but it is only a continuation of the membrane of the vitreous humour.

The third humour is the *vitreous*, which is hollow in the anterior part, in which it receives the poſterior convexity of the chryſtalline. The membrane in which this humour is contained forms ſeveral cells, beſides a bag for the cryſtalline.

The eye is not only preſerved from external injuries by the boney cavity in which it is incloſed, but alſo by the eyelids, which by their tendinous cartilages cloſe very exactly. The lymph which conſtantly moiſtens the fore part of the eye preſerves the tranſparent cornea from the impreſſion of the air: which lymph afterwards paſſes into the noſe by means of the lachrymal points, and the ducts that anſwer thereto, unleſs they are obſtructed, and the lymph runs down the cheeks like tears.

The membranes of the eye ſerve to contain the humours, and the humours are of uſe to change the direction of the rays of light, in ſuch a manner as to cauſe them to be reunited on the retina, in order to make ſuch impreſſions as are capable to excite that ſenſation which is called viſion. This reunion of the rays of light which proceed from the ſame point of an object and which is made on the retina, is abſolutely neceſſary, otherwiſe viſion would be imperfect, as it happens to thoſe whoſe cryſtalline is too convex; in

which caſe the rays unite before they come to the retina.

When the eyes are flat, or are become ſo with age, or, more properly, if the cryſtalline has loſt its convexity, the rays will not unite on the retina, unleſs the object is at a diſtance. And when the cryſtalline has loſt its tranſparency, as when a cataract is forming or formed, they can make no impreſſion on the retina ſtrong enough to cauſe viſion.

The beſt way of examining a horſe's eyes is to take notice whether he wrinkles his brow when he is firſt brought out of a dark ſtable into a ſtrong light, and whether he looks upwards as if to receive more light. Theſe, if the pupil is large at the ſame time, are very bad ſigns. For in the dark the pupil ſhould be large, and ſmall in the light: and therefore the beſt way will be to examine in a ſmall light, and in a great light, to know if the eyes are good.

The *organ* of *hearing* is the *ear*. The outward ear has already been taken notice of. The paſſage or conduit of the inward ear is partly cartilaginous or griſtly, partly membranous, and partly boney. The cartilagious is a continuation of the outward ear. The membranous is a continuation of the ſkin which covers the conduit, and fills up the void ſpaces which the other had left. The ſkin is pierced with a great number of holes which anſwer to glands under the ſkin. Theſe are called *ceruminaos glands*, becauſe they ſupply the ear with wax. The boney part is cloſed at the extremity by a very fine membrane, called the drum, which is placed obliquely; the upper part of its circumference being turned outward, and the lower inward. The direction of this conduit is oblique, for it advances from behind forward.

The barrel or body of the drum is a cavity, whoſe ſurface, which is very unequal, is covered with a membrane which is a continuation of the pituitary of the noſe. In this barrel there are two ducts, two apertures,

tures, called windows, four little bones, and a branch of the fifth pair of nerves.

The ducts are the anterior and posterior: this communicates with the cells of the mastoide process; the anterior has a communication between the barrel and the mouth, and is called the tube or trumpet of *Eustachius*, because it is very narrow near the box, and grows wider till it enters the mouth. This tube is boney at the beginning, and the rest of it is partly gristly and partly membranous. In the barrel of the drum, immediately above the tube, is a semicanal, which lodges in the muscles of the *malleus* or *hammer*.

The *fenestræ* or *windows* are either oval or round; and it is by means of these two apertures the barrel communicates with the labyrinth,

The *little bones* are, the *malleus* or *hammer*, the *incus* or *anvil*, the *stapes* or *stirrup*, and the *orbicular bone*. The head of the hammer has two eminencies and a cavity for its articulation with the body of the anvil. The handle of the hammer is glued to the membrane of the drum.

The anvil has a body and two branches: in the body are two cavities and an eminence which serves for its articulation with the hammer. The longest branch is a little crooked, and terminates in a superficial cavity, to receive one of the convexities of the orbicular bone, while the other convexity of the bone is received into a superficial cavity in the head of the stirrup.

The stirrup has an oval base, with two branches which unite to form a head. The branches are a little hollow on their internal surface, like grooves, into which a very fine membrane is fixed, which closes the space between the branches. The base of the stirrup shuts the oval window, and the round window is shut up by a very fine transparent membrane.

There are three muscles in the barrel of the drum: two of which belong to the hammer, and the third to the stirrup. There is a little nerve observable in the bar-

barrel, commonly called the cord of the barrel: it is a branch of the fifth pair, which runs along the internal ſurface of the drum, and penetrates the boney duct which incloſes it.

The deepeſt part of the internal ear is known by the name of the *labyrinth*. It is compoſed of three parts: the *cochlea* or *ſnail*, the *veſtibulum*, and the *ſemicircular canals*. The cochlea is ſeated within and without; the ſemicircular canals backward; and the veſtibulum in the middle.

The *cochlea* conſiſts chiefly of a boney pipe or conduit, which makes two ſpiral rounds and a half. The cavity of this pipe leſſens gradually, and is divided throughout its whole extent into two parts, ſuppoſed to reſemble flights of ſtairs, by a ſpiral partition, one part of which is boney, the other membranous. The two flights begin at the veſtibulum, into which the ſuperior opens, while the other terminates at the round window.

The *veſtibulum* is a ſmall cavity, irregularly round. It is covered inwardly with a membrane beſet with many veſſels. It has ſeven apertures or holes for the paſſage of the blood-veſſels and nerves which penetrate into this cavity. Five of theſe holes correſpond with the ſemicircular canals, the ſixth to the oval window, and the ſeventh to the external flight of the cochlea.

The *ſemicircular canals* are diſtinguiſhed into the upper, middle, and lower. The upper joins by one of its extremities to the lower, inſomuch that theſe conduits make but one aperture into the veſtibulum. The ſoft part of the ſeventh pair of nerves is diſtributed into theſe conduits and the flights of the cochlea.

Hearing is a ſenſation excited by ſound received into the ear; and ſounds are produced by the vibrations of the air. The ſhape of the external ear favours the reception of the air which is put in motion by ſonorous bodies; and its cartilaginous make, ſerves to preſerve the ſounds in all their ſtrength. Beſides, the ob-

obliquity of the tube through which the ſounds are received, increaſes their force, by giving them different reflections, The earwax ſerves to hinder filth and inſects from getting into the ear, but when the quantity is too great, it is a cauſe of deafneſs.

When ſounds reach the drum of the ear, it is put in motion, and the action of the muſcles of the hammer being to keep it more or leſs braced, it is by this means accommodated to the degree of ſtrength of the ſound.

This membrane of the drum is not abſolutely neceſſary for hearing; becauſe ſome perſons can hear better through the mouth than by the ear. But yet it is abſolutely neceſſary to preſerve the parts contained in the barrel of the drum from external bodies, becauſe thoſe animals which have the drum broken become deaf ſoon after.

The *euſtachian tube* ſerves to diſcharge the lymph, which proceeds from the glands of the membrane which covers the cells of the maſtoide proceſs; and the uſe of the lymph is to ſupple the ſoft parts of the drum. This tube alſo ſerves to let out the air contained in the drum, while the membrane of the drum is drawn inward by the action of the internal muſcle of the hammer; for as a loſs of hearing is the conſequence of the obſtruction of the tube, it ſerves to prove what has been juſt aſſerted.

The little bones contained in the drum being ſhaken by the ſounds that reach to the membrane of the drum, they communicate their motion to the innate air, which occupies the ſpaces that are left by the ſoft part of the auditory nerve, as it runs through the different parts of the labyrinth, communicating its vibrations to theſe nervous ramifications, and ſo excites the ſenſations of hearing. Some ſuppoſe the innate air receives its vibration from the air contained in the drum, which is ſhaken at the ſame time as the little bones; and that theſe vibrations are conveyed to the innate air by means

of

of the round window, which is only ſhut, as has been ſaid, by a very fine membrane.

Of the Diſtribution of the ARTERIES *and* VEINS *of a* HORSE.

THE *arteries* are veſſels which receive the blood from the heart, to diſtribute it into all the parts of the body; and the *veins* are veſſels which carry back part of the blood which has been diſtributed by the arteries to the heart. Theſe veſſels may be eaſily known from each other in a living body, for the arteries have two motions, which the veins have not; in one of which the arteries are dilated, and in the other they are contracted: the firſt is called the *diaſtole*, and the other the *ſyſtole*.

The capacity of the arteries conſtantly diminiſhe as they go farther from the heart; whereas the veins increaſe as they approach nearer this organ. This particular diſpoſition as to the capacity of the veſſels, which gives them nearly the ſhape of a cone, is very advantageous to increaſe the courſe of the blood in the arteries; for it is well known that the current of a fluid augments when it paſſes from a large canal into one that is more narrow. But what is ſaid of the arteries only regards their principal trunks; for the branches after their diviſion have a cylindric figure, which renders the capacities of the veſſels equal in part of their extent. Theſe are ſubdivided into a vaſt number more, which at laſt grow ſo ſmall, as not be diſcovered by the naked eye.

There are veſſels which proceed from hence, called *lymphatic arteries* and *veins*, which admit nothing but the watry part of the blood, unleſs in caſe of inflammations. Theſe lymphatic veſſels ſhould be diſtinguiſhed from thoſe that accompany the conglobate glands,

glands, which are perceived in great numbers on the ſurface of the liver in moſt animals. Theſe laſt are called *valvular lymphatics*, on account of the great number of valves which they contain.

The number of the coats of the blood-veſſels are not ſo eaſy to determine as ſome imagine. Some reckon five, the *vaſculous*, the *cellulous*, the *tendinous*, the *muſculous*, and the *nervous*. However, the muſculous is the moſt conſiderable, and has circular fibres.

All the arteries begin with two principal trunks, one of which proceeds from the right ventricle of the heart, and is diſtributed into the lungs: this is called the *pulmonary artery*. The other, called the *aorta* or *great artery*, ariſes from the left ventricle, and is diſtributed through all parts of the body, not excepting the heart and the lungs.

The heart receives two arteries called the *coronary*. They are diſtributed into the ſubſtance of the heart and its auricles. The orifices of theſe veſſels may be ſeen in the aorta, over-againſt the ſigmoide valves. The aorta then proceeds a little obliquely to the right, from whence returning backward to the left, it forms a ſemicircle: from the upper part of which proceed three conſiderable branches, which have the name of the *upper* or the *aſcending aorta*; and the other part, which runs downward, is called the *lower* or *deſcending aorta*.

The three branches which compoſe the aſcending aorta have particular names: one branch to the right, is called the *right ſubclavian*; that on the left is called the *left ſubclavian*; and the branch in the middle is the *left carotid*; the *right carotid* proceeds from the ſubclavian on the ſame ſide.

The *ſubclavian arteries* go off almoſt tranſverſely under the clavicles, whence they are called *ſubclavian*. As they paſs along, they ſend out three principal branches; the firſt deſcends inwardly along the ribs near the ſternum, and beſtows twigs on the pericardium, me-

mediaſtinum, and intercoſtal muſcles. The *vertebral* or *internal cervical* enters the holes in the tranſverſe proceſſes of the vertebræ of the neck, ſending twigs to the adjacent muſcles. This artery, after having ſent out branches in its paſſage, at length pierces the dura mater, and enters the ſkull through the great hole of the occipital bone, and joining with others forms the vertebral artery. Then advancing to the ſphenoide bone, it unites with a poſterior branch of the internal carotid, and is loſt in the poſterior lobe of the brain.

The *cervical artery* divides into two branches; the former of which is diſtributed into the anterior parts of the neck, the windpipe, the gullet, and pharynx. The other branch goes to the muſcles of the neck and the adjacent parts.

The *diaphragmatic ſuperior* deſcends along the pericardium, on which it beſtows twigs, and is afterwards loſt in the upper part of the midriff. The *upper intercoſtal* proceeds from the lower part of the ſubclavian, and ſends branches along the lower edge of the ribs, intercoſtal muſcles, and the pleura.

The ſubclavian leaving the cheſt, ſends off the *thoracic artery* to the fore part of the breaſt; another branch runs down the fore leg; a third to the muſcles of the ſhank, and a fourth to the parts beneath it.

The *right carotid* proceeds from the ſubclavian, and aſcends upward by the ſide of the windpipe, and coming to the larynx, divides and ſends one branch into the ſkull. The other branch beſtows a twig on the larynx, another on the tongue, a third on the jaws, a fourth on the occipital muſcles, and a fifth to the ear, beſides ſeveral others.

The lower aorta is properly a continuation of the great artery, which deſcends along the back and loins, it afterwards divides into two branches called the *iliac*; before which, above the midriff, it ſends forth the lower intercoſtal, with the bronchial artery that accompanies

companies the branches of the windpipe to the lungs. When it is juſt below the midriff, other branches proceed from it, namely, the *phrenich arteries*, which are loſt in the midriff and mediaſtinum. Paſſing ſtill farther, it beſtows ſeveral branches on the ſtomach and inteſtines; ſuch as the cœliac, the ſplenic, the upper meſenteric, and the emulgent; which laſt go to the kidneys: and below theſe ariſe the ſpermatic, which go to the teſticles. Then the lower meſenteric, which with the upper is ſent to the meſentery.

Then the great artery paſſes to the top of the os ſacrum, where it divides, as mentioned before, into the *iliac*, which again are ſubdivided into the external and internal. From the latter ariſes a branch which is beſtowed on the pſoas muſcle, and other muſcles of the buttocks. Another, called the *hypogaſtric*, runs to the ſtrait gut, the yard, the matrix, the bladder, the proſtrate gland, and to all the parts contained in the pelvis. The internal iliac ſends off the epigaſtric, which turning forward creep along the rim of the belly, where they meet with the *mamillary*; another branch goes to the genitals of both ſexes, and communicates with the hypogaſtric.

Afterwards the iliacs go to the thighs, and as they paſs downward, change their name to the crural arteries, which ſupply the hind legs and feet with many conſiderable branches.

It would be endleſs to deſcribe all the leſſer branches, which divide like the boughs of a tree, whence they ariſe, and where they are loſt. And, to ſay the truth, it is entirely needleſs to a farrier, becauſe he never performs the operations on a horſe, as a ſurgeon may have occaſion to do on a man. For inſtance, if it were neceſſary to amputate a limb, it never would be done, becauſe a horſe could not ſupport himſelf afterwards, nor perform any buſineſs: or if he could make a ſhift to hop about in a miſerable manner, nobody would be at the charge of keeping him. I ſhall there-

therefore mention the veins in as curſory a manner as I have done the arteries: though ſome of theſe are neceſſary to be known, as they frequently come under the conſideration of the farrier.

I obſerved before, that the *veins* take up part of the blood which was diſtributed thoughout the body, to be returned back to the heart. They are imperceptible at firſt, but they ſoon unite with each other, and form larger branches, which unite more and more, and grow larger as they approach nearer, till the veins beneath the heart form one trunk, which is called the *vena cava aſcendens*. The upper great vein above the heart is called the *deſcending cava*, becauſe it carries the blood downwards, as the other does upwards.

The veins have no apparent motion; but have ſemilunar valves in their cavities; which facilitate the motion of the blood towards the heart. In their ramifications there are generally two veins to one artery, and there are likewiſe veins where there are no arteries. There trunks are much the ſame in moſt ſubjects, but their ramifications differ greatly; and even thoſe on one ſide of the body are not always like thoſe on the other.

The *pulmonary vein* proceeds from the left auricle of the heart, and at firſt forms a ſinus; and ſoon after divides into four, then into innumerable branches, which are diſtributed thro' the lungs.

The veins in general have the ſame names as the arteries which they accompany. Thoſe of the brain unload themſelves into the ſinus's, and theſe again into the external jugulars and cervicals: from thence the blood goes down to ſubclavians, which joining together make the *cava deſcendens*. The internal jugulars are ſeated by the carotid arteries, and receive the blood from all the parts which the carotids ſerve, except the poll, part of the face and the neck, whoſe veins enter into the external jugulars. Theſe laſt are thoſe large veins which run the length of the whole neck,

neck, one on each ſide, near the gullet, and are conſtantly opened in moſt caſes that require bleeding, becauſe they are the ſafeſt and the largeſt.

Two of the cervical veins deſcend thro' the holes of the tranſverſe proceſſes of the vertebræ of the neck, and two through the great holes of the ſpine, and one on each ſide the ſpinal marrow. Theſe join at the loweſt part of the neck, and empty themſelves into the ſubclavians, and at the interſtices of the vertebræ communicate with each other.

The ſubclavian veins paſs along by the ſubclavian arteries, under the channel bones, and not only receive a great part of the blood from the veins of the cheſt, but likewiſe from all the veins which run along the outward part of the breaſt, legs and feet. The plate veins which open into the ſubclavian run along the inſide of the fore leg towards the knee. They are frequently opened for lameneſs of the breaſt, and on other accounts, with ſucceſs.

Below this are the ſhank veins and the ſhackle veins, which communicate with the plate veins. The ſhank-veins run on each ſide of the hollow of the back-ſinew, between it and the ſhank; and the ſhackle vein is that branch which runs a-croſs the back-ſinew, and communicates with the ſhank-vein on each ſide, under the place where the horſe is ſhackled. This cannot readily be ſeen or felt, but when the horſe is very hot, and then one or more branches may be readily ſeen in the place abovementioned. Sometimes there are varices in this vein, and then it is but too evident; for then it is a ſign of the weakneſs of the limb, and muſt be removed by manual operation.

Theſe and the ſhank-veins communicate with thoſe on the coronet and toe. Thoſe of the toe are often opened for diſorders of the feet; and thoſe about the coronet are frequently cut in two in the cure of the quitters, without any bad conſequence.

The *vena cava aſcendens* lies in the lower belly, as

alſo the emulgents from the kidneys, the lumbal and ſpermatic veins, the ſacra, the iliacs, and the epigaſtric, which are named after the arteries. The farriers have particular names for ſome of the veins, as the *kidney-veins*, near the loins, the *flank* and *ſpur-veins*, which are often wounded with the ſpurs. The *liver-veins*, on the ſide of the lower belly, which are often opened for diſeaſes in the bowels. That of the rump, they call the *tail-vein*, which they frequently open, or ſcarify the tail, in the ſtaggers and other diſorders of the head.

There is one large vein in the lower belly called the *vena portæ*, whoſe branches ariſe from all the branches of the celiac, and two meſenteric arteries, except thoſe branches of the celiac and two meſenteric which are beſtowed on the liver. Theſe being united into one trunk, enter the liver, and is there diſtributed like an artery, and has its blood collected and brought into the cava by the branches of the cava in the liver. The vena portæ carries blood to the liver inſtead of an artery, for the ſeparation of the gall; a ſlow circulation in this caſe being neceſſary.

The thigh-veins and the crural-veins empty themſelves by entering into the external iliacs, and epigaſtrics, as the ſhank-veins in the fore-legs communicate with the ſubclavians. The thigh-vein runs along the inſide of the thigh, and may be opened in fevers, in lameneſs of the hips, and in diſorders of the loins and kidneys. The crural veins lie on each ſide the inſtep, and anſwer to the ſhank-veins in the fore legs.

Of the GLANDS *and* LYMPHATIC VESSELS.

GLANDS are known by common people by the name of *kernels*; and are deſigned to ſeparate ſome fluid from the blood, or to bring that to perfection

ſection which is called lymph. This gives occaſion to divide the glands into two ſorts, the *conglomerate*, and the *conglobate*. Theſe laſt are alſo called *lymphatics*. Of theſe I ſhall give a particular account, becauſe horſes, as well as other animals, are often afflicted with diſeaſes of the glands

In order to this, we muſt obſerve that the blood conſiſts of two parts, the red, and the lymphatic, commonly called ſerum. Beſides theſe, there are ſeveral other humours blended therein. Theſe different humours are ſeparated by particular organs called *glands*; and this ſeparation is called *ſecretion*. This ſuppoſes the blood to be in ſuch a ſound ſtate, as to ſupply theſe humours, and that its fluidity and progreſſive motion ſhould be regular.

Of the organs called glands there are only two ſorts, the *conglomerate*, and the *conglobate*. The uſe of theſe laſt is to receive and elaborate the lymph, by attenuating its parts, ſuch as the axillary and inguinary glands. Other conglobate glands receive the chyle after the digeſtion of the aliment, beſides the lymph which is carried thereto by the lymphatic veins of the adjacent parts: theſe are the glands of the meſentery.

The conglomerate glands are deſigned to ſeparate ſuch humours from the blood as are confounded therewith: ſuch as the liver, which ſecretes the bile; the parotids, which ſeparate the ſaliva; and the kidneys, which ſecrete the urine, *&c.*

The glands are bodies endowed with peculiar veſſels, as the ſecretory and excretory ducts; as alſo with nerves, arteries, and veins, as well ſanguinary as lymphatic. But we muſt obſerve that the ſanguinary and lymphatic arteries are continued to veſſels of the ſame kind. Thus the arteries that carry the blood are continued to the ſanguinary veins, and the arteries that convey the lymph are continued to the lymphatic veins. As alſo that the ſecretory duct takes its riſe at the place where the lymphatic artery unites with the vein

of the ſame name. And likewiſe that the lymphatic artery proceeds from the capillary arteries that carry the blood.

The ſecretory veſſel, which makes up the greateſt part of the body of the gland, is lined with a kind of down, which is of different colours, according to the nature of the fluid which is ſeparated by the gland. Now ſuppoſe this down is originally imbued with the ſame fluid that the gland ſecretes, we may then ſuppoſe it will let nothing paſs through but what is of the ſame nature; like a ſheet of cap-paper, which being dipt in oil or water, will let nothing paſs through but a fluid of the ſame kind into which it was dipt. Or as a bit of cloth ſaturated with oil, being plunged in a veſſel wherein there is oil and water, will let nothing paſs through it but oil.

In conſequence of this, if we conceive the blood to contain the different humours which are to be ſecreted by the glands, and which being carried to the organ by the ſaguinary artery; it will ſupply the lymphatic artery, continued thereto, with a part of the lymph which it contains, which abounding with the different fluids to be ſeparated therefrom, will ſuffer the fluid to eſcape, which is analogous to that wherewith the down was imbued; while the other humours, which have no relation thereto, will follow the courſe of the lymphatic veſſel, which will again unload itſelf into the maſs of blood, and with it be tranſmitted to the gland deſigned to ſeparate another fluid.

The fluid which is introduced into the ſecretory veſſel, continuing to paſs through its different ramifications, will at length reach the excretory duct, and then it will depoſit the liquor which is contained in reſervoirs formed like veſicles, as is obſervable in the glands of the ſtomach, the guts, *&c.*

The fluids ſeparated by the conglomerate glands are of three kinds; the firſt are called recrements; ſuch are thoſe that, being once ſeparated from the

maſs

maſs of blood, mix with it again for different uſes; as the unctuous juice contained in the cells of the marrow, the fluid of the pericardium, that of the ventricles of the brain, cerebellum, *&c.*

The ſecond ſort are the excrementitious fluids; that is, ſuch as being once ſeparated from the maſs of blood, never return into it again; or if it ſhould ſo happen, would prove prejudicial to the animal: as the urine, ſweat, and the matter of inſenſible perſpiration.

The third kind are ſuch fluids as are in part recremental, and in part excremental: that is, a part of theſe fluids enter into the maſs of blood, while the other part never does, but is thrown out of the road of circulation. Such are the ſaliva, the bile, the gaſtric juices, as alſo the inteſtinal and pancreatic juices.

The firſt and moſt conſiderable conglomerate gland in the whole body, is that which is contained in the inner part of the ſkull; and is the *brain*, the *cerebellum*, and the *medulla oblongata*. We may alſo reckon the *choroide plexus*, and that which is called the *pituitary gland*. This ſeparates the animal ſpirits.

The principal in the face is the *lachrymal gland*, and thoſe which compoſe in part the *lachrymal caruncle*, as alſo thoſe which are placed on the edge of the eyelids, called the *ciliary glands*. The pituitary membrane of the noſe is beſet with a great number of glands to ſecrete the mucus. The glands whoſe excretory ducts empty themſelves into the mouth, are in great number; as the parotid and maxillary glands, the ſublingual, the buccal, the palatine, the almonds, the ſmall glands on the ſurface of the uvula, and thoſe of the pharynx. Theſe ſeparate the ſaliva and other fluids, to mix with the aliment, and to render ſwallowing eaſy. The gland under the tongue, called the *ſublingual*, is the ſeat of the *ſtrangles* in young horſes.

The ears have the ceruminous glands which ſupply them with wax, and ſome ſmall ones in the barrel of the drum, and in the euſtachian tube. The cheſt has

the feweſt conglomerate glands, among which ſome reckon the thymus, and the ſmall glands ſuppoſed to be contained in the pleura. The bronchial glands ſecrete a lymphatic fluid into the cavity of the bronchia, and the tracheal into the windpipe. Add to theſe, thoſe on the inſide of the larynx, and thoſe placed on the convex part of the epiglottis.

The lower belly has a greater number of conglomerate glands than any other part; for beſides thoſe of the peritonæum, there is the pancreas, which ſeparates the pancreatic juice, the liver which ſecretes the gall, the kidneys which ſeparate the urine: as alſo the glands of the ſtomach and inteſtines, the capſulæ attrabiliariæ, the proſtrate gland, and the glands in the ſpungeous web of the urethra. Add to theſe, the glands on the inſide of the bladder, which ſeparate a fluid to guard it againſt the ſharpneſs of the urine.

There are alſo glands in the matrix and vagina of mares, and the glandulous bodies which ſurround the urethra.

To all theſe we may add the mucilaginous glands which ſupply the joints with a fluid to render them ſupple, to which the name of *ſynovia* is commonly given.

As to the *conglobate glands*, there is none obſervable in the ſkull, unleſs you will give that name to ſome glandulous grains which are placed along the ſuperior longitudinal ſinus. There is a conglobate gland which touches the parotid, and another on the baſis of the lower jaw. This has given room for ſome to divide the maxillary and parotid glands into conglobate and conglomerate. There are likewiſe conglobate glands which accompany the internal jugular veins, and others that are placed on the poſterior part of the neck, ſome near, and ſome farther off the occipital bone.

In the cheſt there are the dorſal, which are two, connected to the gullet. There are alſo glandulous grains of the ſame kind at the baſis of the heart.

In

In the lower belly there are the *gaſtric*, which are ſeated on the upper orifice of the ſtomach. The *hepatic*, which are placed near the entrance of the vena portæ, under the hollow part of the liver, and others near the biliary duct. The *ſplenic* lie on the internal ſurface of the ſpleen, and the *epiploic* on the upper part of the caul. Some lie near the reſervoir of the chyle; and the *meſenteric* all over the whole length of the meſentery. The *iliac* touch the veſſels of the ſame name; and others are ſeated on the internal ſurface of the os ſacrum.

The three axillary glands lie under the armpits; there are likewiſe ſeveral in the groins, but not ſo large in horſes as in men. Laſtly, there is one remarkable in the middle of the thigh, commonly called the *pope's eye*.

Beſides the *lymphatic veſſels*, formerly mentioned, there is another kind, called the *valvular lymphatics*, on account of the great number of valves contained therein, and which may be known on the outſide by the number of knots to be ſeen thereon. Theſe veſſels may be diſcovered on the ſurface of the viſcera, and more particularly the liver, where they form a kind of net-work. They likewiſe attend the greateſt part of the veins, as well as the conglobate glands in which theſe veſſels ſeem to terminate. Then other branches proceed from hence, generally larger than the former, which paſs on to the next conglobate glands.

The veſſels are tranſparent, becauſe they conſiſt only of a thin membrane, through which a clear fluid may be perceived, called lymph. They diſcharge this into the receptacle of the chyle, the thoracic duct, and ſome of the veins which they accompany. This lymph is taken up again by theſe veſſels in all parts of the body, and ought to be looked upon as the remainder of that which has been employed in nouriſhment. It ſerves to dilute the chyle, and to ſupply it with

parts that contribute to nouriſhment. We are not ſufficiently acquainted with the origin of theſe veſſels, nor their diſtribution through the body, ſo as to give an exact deſcription of them. In general they may be looked upon as veins which carry a fluid from the circumference of the body to the centre, to which the valves contained therein greatly contribute.

Of MANAGING HORSES *on the* ROAD.

GENTLEMEN who can take their time in going a journey, ſhould ride but a ſhort ſtage the firſt day, a longer the ſecond, and a longer ſtill the third. When the journey is very long, it will be proper to reſt the fourth day, that the horſe may have time to recover his ſpirits and vigour; after which he will purſue the journey with eaſe. Some are ready to think that this is entirely needleſs, and that they have nothing to do but to puſh forward; but they are often deceived, for we have ſeen many that were obliged to leave their horſes behind them, and to hire freſh ones.

Thoſe that travel in hot weather, which always cauſes the horſes to perſpire greatly, ſhould let them drink a little now and then, to ſupply the loſs of the fluids, but never much at a time. This method would likewiſe cool his mouth, and refreſh his ſpirits. But when you come within a mile and a half or two miles of the place you intend to bait at, whether at noon or at night, let him drink a little; after this ride him gently, and yet ſo as to warm the water in his belly; but not hard, for this is dangerous, and may render him purſy. This precaution is neceſſary; for when a horſe has his belly full of cold water, there may be a danger of a coagulation of the blood in the ſtomach and lungs, which may produce inflammations of very dangerous conſequence. However, the nearer you come

come to the inn the ſlacker ſhould be your pace: otherwiſe the horſe muſt be led about, that he may cool by degrees.

If the weather will not permit this, and there is a neceſſity of putting him directly into the ſtable, don't take his bridle off directly, but ſtay till he has recovered his breath. Then looſen his girts, take off the crupper, and put ſtraw between the pannels of the ſaddle and his back. This done, let him be well rubbed in every part, till he is quite cool, letting the ſaddle remain as before all the time. If there is no opportunity of watering your horſe on the road, as abovementioned, don't give him water at the inn while he is hot, nor let him be rode into the water to waſh or cool him, for this may cauſe the blood to ſtagnate in his limbs, and bring on diſorders in his legs very hard to remove. Not that you need be cautious in hot weather to avoid every lake or puddle, if any; for ſuch a tranſient paſſage through them may refreſh the horſe and cool his feet, but can do him no manner of harm.

Having taken care that every thing is done as above directed, it will be proper to let his water be lukewarm, for fear of conſequences. What has been ſaid about water may in ſome meaſure be applied to his food; for while a horſe continues hot, the blood-veſſels of his ſtomach are diſtended, and it would be improper to feed him while he continues in that condition. Some horſes, indeed, have no appetite till the circulation of the blood is moderate, and till they are a little recovered from their fatigue; but this is not always the caſe. The horſe at firſt may have a little hay given him by handfuls, till he is quite cool, and then the uſual quantity of water and meat. But if he is to travel farther the ſame day, the feed ſhould be but ſmall, and at night he may have a full feed, that is half a peck of oats with a few beans, given him at twice. Remember likewiſe, that it will be proper to throw

throw a covering over the horſe when he comes into the ſtable, eſpecially if he has been uſed to be clothed.

Let care be taken that all the old hay be taken out of the rack, and freſh put in; and if the roads are duſty, it will be proper firſt to give him a little bran to cleanſe his mouth and tongue. He ſhould always have his water before his feed, for this has been found to be moſt wholeſome both by reaſon and experience. Every one knows the neceſſity of littering a horſe well, for it is not only refreſhing, but ſerves to keep their feet in a proper temperature.

When you are on the road, and the horſe ſeems to want to ſtop in order to ſtale, you muſt not prevent, but rather encourage him; and this will make him travel with greater eaſe and pleaſure.

When the girts are looſened, it will not be improper to look under the ſaddle, on each ſide, to look if there is any hurt; and if there is, the ſaddle ſhould be ſo ſtuffed as to prevent its preſſing on the ſore part. Likewiſe on the road, if your own weight, or otherwiſe, cauſe the ſaddle to ſink down upon the withers or backbone, you ſhould get it ſtuffed at the firſt convenient place you come at.

When you come to the inn, it will be proper to have the horſe's feet examined, to ſee if his ſhoes are all right, or whether there is any gravel between them and the foot, or whether any thing is ſticking in the ſole, which muſt be taken out. If a horſe's back ſhould be ſwelled under the ſaddle, the beſt way will be to fill a thin bag with hot horſe-dung and tie it on his back all night.

It ſometimes happens that a horſe's back is raw, or that the ſwelling and inflammation has ſmall holes or wounds therein, which ſome call the *warbles*. In this caſe bathe the part with equal quantities of ſpirits of wine and tincture of myrrh and aloes, with a little ſpirit of turpentine. Or, which is better, with *friers balſam*. But as this is dear, being generally ſold for a

ſhilling

ſhilling an ounce. I ſhall ſhew how to make it, and then you may be more free in uſing it.

Take of balſam of Tolu an ounce, benjamin and ſtorax of each three ounces, of myrrh an ounce, aloes and olibanum of each half an ounce; powder theſe ingredients as fine as you can, and then put them into a ſtone-bottle; then pour three pints of rectified ſpirits of wine over them, and ſhake them well together. In the midſt of ſummer ſet the bottle in the ſun for a week or ten days; at other times by the fire, till the gums are near diſſolved, and then it will be fit for uſe.

This is of ſingular ſervice to cure ſores, wounds, and bruiſes in men as well as in horſes; and a vial of it is very proper to be taken on a journey; for, from twenty to ſixty drops may be taken on a lump of ſugar, or in a glaſs of wine, in coughs, colds, cholicks, and many other diſorders. Nothing can be better than this when a horſe's foot is hurt by any rough or ſharp thing upon the road or otherwiſe.

You may apply it to the foot by making it warm, dipping lint therein, and then applying it to the part when it is cleared of the gravel, thorns, *&c.* and renew it as it grows dry.

When a horſe is very much fatigued or tired after a journey, it will be proper to take two heel-nails out of each foot before, to bleed him in the neck, and inſtead of oats to give him bran a little moiſtened, for ten or twelve days. Likewiſe ſtuff the feet with cow-dung and horſe-dung mixed together with chamber-lye, to prevent their ſwelling, which may ſometimes happen after a tedious journey.

Of the MANAGEMENT *of a* HORSE, *ſo as to prevent diſeaſes.*

BEFORE we come to ſhew how horſes ought to be treated to preſerve them in health, it will be

be neceſſary to ſhow when they are ſo. That horſe may be ſaid to be ſo, who is well in fleſh, that has a ſmooth gloſſy coat, that is lively and briſk, performing his buſineſs well without being diſpirited, that feeds clean, without having a languid or voracious appetite, eating and drinking moderately, never refuſing his meat or labour. When a horſe has all theſe qualities, our ſtudy muſt be how to preſerve him in this condition, not by medicines which are now uſeleſs, but by proper care and due management.

When a horſe eats either too little or too much, it is by no means conſiſtent with health; for if he eats too little he will be always low, diſpirited, and incapable of performing his neceſſary labour. And if he has a ravenous appetite, he is generally of a lax habit of body, and dungs more frequently than one whoſe fibres are ſtrong. Therefore it is an abſurd opinion to ſuppoſe, that when a horſe eats a great deal, he will be the better able to do a great deal of work. Beſides, theſe ſort of horſes have ſeldom or ever a good digeſtion, which will appear from their excrements being crude, and bringing away the nutritive part of the food, which ſhould have been retained in the body, and from whence ſtrength proceeds. Such horſes as theſe are frequently dunging upon the road, and never perform a journey to the ſatisfaction of the rider. One way to remedy this evil, is to put his hay into ſuch a rack or cratch, that he can draw but little out of it at a time, and to mix chopt wheat-ſtraw with his oats, to make him chew them ſufficiently, and to prevent his ſwallowing them too faſt.

Hay and graſs alone are but low feeding, and a horſe that has nothing elſe will ſoon loſe his fleſh, if he is uſed as a working horſe. However, there is a great deal of difference in the goodneſs of hay, and ſome ſort of land will never produce any that is fit for a valuable horſe. In rainy ſeaſons when the graſs is cut down, it is ſo ſoaked with water before it is got in

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that the virtue of the hay is, as it were, waſhed out, and nothing remains but inſipid ſtuff, which is not unlike the leaves of tea after this virtue has been drained out by hot water. Likewiſe when hay is made in hot ſun-ſhine weather, a great many of the ſpirituous volatile particles fly off, and with them the fineſt part of the nouriſhment. But this is often unavoidable, and yet it is infinitely better than the former. That hay is beſt, which is made in dry, cloudy weather, for then it will remain juicy, and contain all its virtues. Thus thoſe herbs that are gathered for the uſe of medicine are directed to be dried in a ſhady place, where no wet can come to ſpoil them.

When you come to examine the goodneſs of hay, you ſhould always chooſe that which is hard, of a paliſh green, that has a quick, lively, agreeable ſmell, and is fulleſt of flowers. For that which is muſty, damp, ſoft, or without ſmell, is not fit for uſe. Hay, after it is got in, undergoes a kind of fermentation, with heat, which ennobles its juices, and makes them more ſpirituous and proper for nouriſhment in the ſame manner as apples; for there is a very remarkable difference between the taſte of thoſe that are juſt gathered off the tree, and thoſe that have lain ſome time; for a kind of vinous ſmell and taſte is obſervable in theſe laſt. For this reaſon, new hay, that is, before it has ſweated, as they call it, is never fit for any but labouring horſes. This fermentation of the hay is the occaſion of its firing when it is ſtacked before it is ſufficiently dry; for the moiſture contained therein concentrates the heat, and keeping within the body of the ſtack, attracts the electrical fire, and ſo ſets it a burning.

The hay that is preſerved after part of it is burnt, is very good fodder for horſes, by way of change, except that part of it that has ſuffered too much; and there are ſome ſickly horſes that will prefer this to any other, which they may be allowed without detriment: however it will not be proper to give it for a conſtancy.

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The time when new hay becomes fit for uſe is generally about Chriſtmas, but this is beſt known by its ſmell, for when it has been kept long enough, the ſmell is pleaſant, whereas before, it was deadiſh or faint: though ſome will not ſuffer it to be uſed till the ſucceeding ſpring; but in this caſe the noſe is the beſt director.

Clover-graſs is by ſome thought to make the beſt hay, whence comes the proverb, *to live in clover*; but this is a miſtake; for if a horſe feeds conſtantly upon it, it will produce various diſorders, particularly the cholick. It is much more wholeſome when a little of it is mixt with other hay, particularly rye-graſs. And now I am ſpeaking of this, it will not be improper to obſerve that the time of uſing rye-graſs hay is a little on this ſide Michaelmas, for then it is tolerably hard and dry; and after that, when the weather becomes damp, it will imbibe the moiſture of the air, and ſo become unwholeſome. For the ſame reaſon, all ſorts of hay ſhould be freſh from the ſtack, becauſe the weather in winter-time will, in ſome degree, affect it in the ſame manner, and render it not ſo proper to feed a horſe with. Hence likewiſe we perceive the cauſe why ſoft hay is not ſo wholeſome as the hard, as it imbibes the moiſture of the air more ſpeedily, and is, on that account, more likely to ſpoil and rot.

In general, ſhort hay is better than that which is long and rank, for the laſt is more duſty, and ſhould always be well ſhook before it is uſed. But there needs no ſuch precaution with regard to ſhort hay, or rather it ſhould always be omitted, for as it is commonly full of ſeed, it would be ſhook out, and with it a uſeful part of the nouriſhment. For horſes are fond of the ſeed, and will lick it up when it falls into the manger, even before they begin to eat the hay; which is a certain proof of its utility, if you will allow horſes to know what is moſt fit for their own health. And that this may be granted, is pretty certain, becauſe there are no animals that care to be fed with incongruous

aliments,

aliments, unleſs driven to it by neceſſity. And there is no doubt to be made, but that nature is a much better teacher than any man can be, and knows what kind of aliment, and ſometimes remedies are moſt proper, much better than we with all our boaſted knowledge. Elſe whence comes it to paſs, that dogs, by a kind of inſtinct, always have recourſe to a particular kind of graſs, which on that account we diſtinguiſh by the name of dog-graſs. As for what is ſaid of its tickling their throats, and ſo makes them vomit, is contrary to experience.

That hay which ſtands long on the ground in wet weather, while the farmer waits for a dry ſeaſon, is commonly rotten at the root, and when it is made becomes full of duſt. This ſhould never be made uſe of when there is any better to be got; but when you are obliged to uſe it through neceſſity, be ſure to ſhake the duſt well out of it, and then it will not have thoſe bad effects as will certainly follow without this precaution.

Some affirm a horſe will eat more bad hay than good, becauſe it yields little nouriſhment, for then he will endeavour to ſupply in quantity what it wants in quality. However this is certain, that when a horſe is kept upon bad hay only, let him eat what quantity he will, he will ſoon become low, diſpirited, and poor; for his blood being impoveriſhed, and perhaps viſcid, all the wheels of nature will ſoon be clog'd, and then it will be no wonder that low, chronic diſeaſes ſhould enſue.

The other part of a horſe's diet is various in different countries, and yet we can perceive no particular effects from their different kind of food; for horſes in Spain, where they feed with barley, have as much mettle as in other places. Cuſtom has a wonderful influence over the feeding of animals in general, otherwiſe it would be abſurd to imagine, that cows could be brought to live on putrified fiſh; and yet they have little elſe in the ſouth parts of Perſia, and near the

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gulph of Arabia, where they bury fiſh in the ground till it is rotten, and then mix it with water, and give it to their cattle, who ſwallow it very greedily. It is the ſame among mankind, for though they generally agree in the uſe of bread, it is made with different ſorts of corn; and all over the eaſtern countries they ſubſtitute boiled rice in its room. There is no nation except the Tartars, who uſe no bread, nor any thing that ſerves for the ſame purpoſe.

It is the cuſtom with us in England to feed our horſes with oats, which are not ſo heating as wheat, nor ſo cooling as barley. Horſes in general are fond of them, though they have been uſed to barley or other grain. In many countries they make them into bread or cakes, and almoſt live upon them, particularly in Scotland, and the northern parts of England; which ſhews they have no bad qualities; for the people there are as ſtrong and robuſt as in other parts of the world. But if they are given to horſes with two free a hand, theſe are ſuppoſed to heat overmuch: but however this be, we are ſure that it will cauſe them to neglect their hay. But though oats are never ſo cheap, it is a bad practice, unleſs the horſe has a great deal of exerciſe, for otherwiſe he will be apt to fall into fevers, or breed ſurfeits.

The beſt oats are heavy, with a thin ſhell, and which rattle when they are poured into the meaſure. The northern countries where the ground is cold and mooriſh, produce the beſt oats, and large quantities are ſent from thence to London, ſufficient to ſupply all the parts round about it. Sometimes when the paſſage is long, they are apt to grow muſty, by being kept ſo long in the hold of a ſhip. But if they are ſpread about on a deal-floor, and often turned, they will come to themſelves, and recover their ſweetneſs. And yet fine delicate horſes ſhould be fed with the freſheſt and neweſt oats, for theſe are found by experience to agree beſt with the conſtitutions. Let the

colour

colour of oats be what they will, if they are ſweet, firm, and hard, we may depend upon their being good, and then we need not trouble our heads about their aſpect. However, if they happen to be huſky, if we increaſe the allowance, they will anſwer the ſame ends as if they were otherwiſe; for ſome country-farmers are ſo ſparing, that they will feed their horſes with huſks only.

The common opinion, that plentiful feeding with oats makes a horſe hot is very abſurd, for if they rendered a horſe hot, he would conſequently be more fond of drinking: but we find by experience, that he wants leſs water with oats than with hay.

Other kinds of corn would agree very well with horſes, if they were accuſtomed to eat it, but without that it has unexpected effects. Thus wheat, as well as barley, will purge horſes when it is given to them at firſt, and yet when they are a little uſed to it, no ſuch conſequence will attend it. However, wheat is too chargeable a diet to be given conſtantly to horſes; and yet it will not be amiſs to mix a little with the oats of running horſes, hunters, or the like. And as change of diet, as well as exerciſe, has a tendency to keep horſes in health, they may ſometimes be allowed a little barley or malt mixt with their oats and beans.

Beans are another part of a horſe's diet, and may very properly be allowed him in ſome caſes, eſpecially when they are upon the road, or when it is their buſineſs to draw in a coach or cart. They yield very ſtrong nouriſhment, and may be very properly mixt with bran or chaff. If you can have them ſplit, it will be beſt, for then there will be no danger from the red bug that is ſaid to breed among them. Peas differ little from beans, but they are ſeldom given to horſes on account of their price. In ſome places, as in Scotland, they give their horſes chopt ſtraw; in others peaſe-ſtraw, or peaſe-haulm; and in others again, a great deal of bran. But this laſt is the propereſt diet

for ſick horſes when ſcalded. But if too much of it be given to ſound horſes, it renders them weak, and brings them low. Though when it is new and ſweet it is beſt, and when old and muſty very pernicious.

The proper allowance for horſes in a day is very different, for ſome require more, ſome leſs. Eight quarterns or quarts in a day, of oats, with one of beans, is as much as any horſe needs to have when he labours, and thoſe that do but little work ſhould have three or four quarterns.

When horſes are turned out to graſs, and kept in the fields, they are always the freeſt from diſeaſes, tho' not fitteſt for labour; and therefore when they are taken from thence for hunting, or for labour, they ſhould have a feed or two of corn; and if they are allowed it at other times, they will perform their buſineſs better. When graſs is ſcarce, or the weather is bad, they ſhould always have hay to go to, and a place for ſhelter, eſpecially if they are kept out in the winter, when there is little occaſion to uſe them.

The goodneſs of graſs ſhould always be principally conſidered. That graſs is always beſt that is ſhort, thick, and that grows on dry, fertile ground, that wants little or no dunging, and that has been uſed for paſture only a conſiderable time. Meadows that have been often mowed, are not ſo fit for horſes as commons or parks, unleſs they are well manured, and then ſowed with clover. Long, rank, ſour graſs is by no means a good paſture; for though the hay that is got from thence be pretty good, it is owing to the fermentation or ſweating, as it is commonly called, which exhales the juices, and makes them more fit for uſe.

The place where a horſe is to run, ſhould always be at a diſtance from great towns if poſſible, for where there is plenty of manure, and the grounds are much dunged, they are never ſo fit for uſe, as when nature alone plays her part without the aſſiſtance of art. For tho'

tho' a horſe in ſuch places may do pretty well in the ſpring, when he can pick and chooſe what he likes, yet afterwards, when he muſt eat what there is, or none, he generally declines, and grows pot-bellied. This obſervation upon graſs is of more conſequence than many are aware of.

I believe that almoſt every one has obſerved, that clay will retain water longer than any other kind of ſoil; and for this reaſon, ponds that will not keep water are often covered with clay at the bottom, to prevent the water from ſinking into the earth. Hence it appears why clayiſh ground in the winter time, or in rainy ſeaſons, muſt be more wet, flabby, and damp than others: therefore all ſuch grounds are unfit for paſture, unleſs in dry ſeaſons, and they generally do horſes more harm than any other whatever. And it has been found by experience, that horſes that have been taken in a-nights, which one would think might prevent any bad effects, have been thrown into various diſorders.

There are no horſes that feel the good effects of graſs more than the broken-winded; for this generally keeps their bodies open, and by that means prevents a full belly from hindering the playing of the lungs; whereas hay paſſing off more ſlowly ſtuffs them up, and muſt needs hurt their wind in proportion, as it renders them more coſtive. And, to ſay the truth, graſs, in the ſpring, is an excellent remedy for many diſeaſes; becauſe it renders the blood and juices fluid, and opens thoſe obſtructions, and diſſolves thoſe concretions which had been contracted in the winter by hard, dry food, and want of exerciſe. Beſides, it is a kind of natural purge, and carries off thoſe impurities which have been diſſolved by this diet, and made ready for excretion.

But if ſpring-graſs is not found ſufficient for theſe purpoſes, then recourſe muſt be had to the ſalt-marſhes; for theſe being impregnated with ſalts, eſpecially when they are overflowed by the high ſpring-tides

that happen in the latter end of February or beginning of March, and likewiſe in October, at which times they are always higheſt, becauſe the ſun and moon then act jointly upon the water. Theſe ſalts adhering to, and being ſwallowed by the graſs, have much the ſame effect upon horſes as ſea-water has; for in both they operate by ſtool and urine: and therefore they will prove an excellent remedy in moſt tedious diſeaſes. Beſides, the water that ſuch horſes are obliged to drink is always brackiſh, ſo a horſe that continues there long, may be ſaid to be under a courſe of ſea-water. If we were to judge by reaſon only, we might be apt to conclude, that keeping horſes for any conſiderable time in ſalt marſhes would be very injurious; but experience ſhews the contrary, for when they have been kept there all the year, they are generally in better liking, and have firmer fleſh, than thoſe that have ſeemingly a better paſture, nor is there any occaſion for dry fodder, but when the ground is covered with ſnow.

When horſes ſtand long in the houſe, as I obſerved before, no certain general rule can be laid down, as to the quantity of food: and therefore the conſtitution of the horſe ought to be conſidered, for ſome horſes have a much better appetite than others, and therefore may be more indulged that way. When they have a voracious appetite, and at the ſame time cannot digeſt all they eat, but become purſy, and begin to ſhew ſymptoms of any diſeaſe, they muſt be abridged in their allowance, and, as was ſaid before, their oats ſhould be mixed with chopt wheat-ſtraw, that they may chew them the better, which cauſes a better digeſtion as the aliment paſſes thro' the ſtomach and inteſtines.

When horſes ſtand long in the ſtable without exerciſe, they always require a leſs quantity of aliment, for they ſhould always be fed in proportion to the labour that they undergo. And therefore horſes that are kept much on the road, that are often rid a hunting, or that

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are out daily with a coach or cart, ſhould always be well fed.

Some horſes pull out the hay from the rack under their feet, and, as it were, pick and chooſe what they like beſt. This is looked upon by ſome as a ſign of a bad horſe, but experience has ſhewn the contrary, and that they are ſometimes as good as any others. However the allowance of corn may be abridged, and then perhaps the hay may go down the better.

Some horſes are never eaſy when they ſtand before an empty rack, eſpecially thoſe that are very young, but will always be reſtleſs, ſtamping, or kicking, or biting the manger. And if they are ſuffered to be conſtantly nibbling in this manner, they will at length turn crib-biters, which is a very bad quality. The beſt way to remedy this is by laying a little good clean ſtraw before them, and this will keep them from worſe employment, by finding them ſomething to do, without any bad conſequences.

Exerciſe is a principal means of keeping a horſe in health; for even thoſe that are but meanly ſkilled in the theory of medicine muſt know that the motion and exerciſe of the body promotes perſpiration, and that a free perſpiration is neceſſary to health; becauſe when the perſpirable matter flies off through the ſkin in a due quantity, it is greater than all the reſt of the ſecretions. Now as perſpiration depends on the circulation of the blood, when this is either too quick or ſlow, that ſalutary evacuation is either increaſed or diminiſhed; for as it paſſes off through the pores of the ſkin, the greater the afflux of the fluids is to this part, the greater plenty of this perſpirable matter will be ſecreted; and the more languid the motion of the blood is, the leſs will be the ſupply of the particles to be carried off.

By motion and exerciſe the muſcular fibres are contracted, whence the blood flows with a quicker motion and a greater force through the veſſels of the

heart, by which means they will be more expanded, and this expanſion will be followed by a greater contraction; wherefore while the blood is thus increaſed in its motion, the whole maſs will circulate more ſpeedily through the veſſels, and conſequently exerciſe and labour, by quickening the motion of the blood, will tend to promote perſpiration, and reſtore it when ſuppreſſed.

That this is the caſe, may be known from the heat which is excited by motion and exerciſe; for that always increaſes in proportion to the rapid motion of the blood through the veſſels. This is evident from fevers, wherein the ſwift circulation of the blood is always diſcoverable by the pulſe, and which are always attended with very intenſe heat. Beſides, every one knows the ſevere cold of winter is hardly felt, while the body undergoes any laborious motion.

Beſides, a quick circulation of the blood attenuates the humours, and renders them more fluid, whence they are freed from impure matter, a weak appetite is ſtrengthened, the ſpirits are revived, and the whole body rendered more robuſt. For as the ſtrength of the body depends on the influx of good blood into the muſcles and fibres ſerving for motion, when it flows to the ſtomach, which is the ſhop of digeſtion, it follows that appetite ſhould by that means grow better.

Hence it appears that no remedy whatever can have ſo great a tendency to prevent and cure many diſeaſes as exerciſe; particularly, the greaſe, cheſt-foundering, ſtone, intermitting fevers, penſiveneſs, a broken-wind, a dropſical habit of body, the ſcurvy, the yellows or jaundice, and gourdineſs or ſwelled legs. On the contrary, nothing is more detrimental to the health than conſtant reſt, becauſe it generates too large a quantity of humours, attended with impurity, which, by obſtructing and ſtuffing the bowels, occaſion various diſeaſes; while motion conſumes the redundant plenty of the humours, and cleanſes the blood from impure

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crementitious matter, and by preſerving the fluidity of the blood, keeps all the veſſels open, which would promote many diſeaſes, if they were obſtructed or ſhut up.

To exerciſe may be referred the rubbing, currying, and dreſſing of horſes; for theſe increaſe the heat, promote an afflux of blood to the external parts, and attenuating the blood, promote its circulation, and conſequently are a great friend to perſpiration. It is likewiſe very helpful to the ſtomach, and a great promoter of digeſtion.

When a horſe is excerciſed it ſhould always be in the open air; for the bad ſtagnating air of a cloſe place is ſufficient of itſelf to breed various diſeaſes. The offenſive ſmell and heat which we always find when ſeveral horſes are kept together in a cloſe ſtable, is ſufficient to convince any thinking perſon of the neceſſity of pure, ſerene, temperate air; and there is nothing more noxious and prejudicial to health than the ſteams that ariſe from animals, when there is no free egreſs and regreſs of the air. We have but too many examples of the truth of this among the human ſpecies, and what diſeaſes are bred in crowded ſhips, hoſpitals, and priſons. Whereas good air preſerves the contractive and expanſive motion of the ſolids ſafe and ſound; preſerves the due ſtrength and tone of the fibres, not by conſtringing or relaxing the pores of the ſmall veſſels, or diſſolving the texture of the fluids, or rendering them clammy and viſcid, but by preſerving their mixture and temperature. I hope this hint will influence thoſe who have horſes under their care, to keep their ſtables clean, and to ventilate them with freſh air, to prevent the horſes from being ſtifled by their own ſteams and naſtineſs.

All exerciſe muſt be kept within due bounds; for if a horſe is rid beyond his ſtrength, he will ſuffer more from it than if he had been at reſt in the ſtable. Nor ſhould a horſe be put to violent exerciſe with a full

belly; and therefore when he has juſt had his meat and water, his pace muſt be very ſlow at firſt, and then as his belly begins to empty, his ſpeed may be increaſed without danger.

A horſe that is high fed, without any exerciſe, is very unfit to perform a journey; for before he has travelled many miles, he will loſe his ſpirits, and be apt to tire, unleſs he is ſuffered to crawl along at his own ſlow rate. Hence the conſequence of a due care in want of dreſſing and exerciſe becomes very evident. And though ſome are not willing to ſee this, yet none can be ignorant that a horſe's legs will be ſwelled with ſtanding in the ſtable and doing nothing.

When horſes have been ſuffered to continue long without exerciſe, they are not to be put to hard labour all of a ſudden, but by degrees: for though they may ſeem to be in good caſe, and to be full of fleſh, yet it generally renders them looſe and flabby. For the fibres of animals never retain a due or ſpringy elaſticity, while they continue inactive. I remember a dog that was tied up all day long in a yard, for ſeveral years, and was let looſe at night, at which time he generally retired to his kennel immediately. I perſuaded the maſter to take him into the fields, to ſee how he would behave; and, according to expectation, in walking about half a mile, he was quite tired, and was uſed to ſtop every twenty yards, inſomuch that we were not able to get him home again, but with the utmoſt difficulty.

There is no doubt to be made, but the fluids of the body are grealy vitiated, as well as the muſcles which are the more immediate inſtruments of motion; and therefore it will be proper to take away blood to leſſen their quantity, and in ſome meaſure to reſtore the due tone of the over diſtended veſſels: and then the ſtate, colour, and conſiſtence of the blood, which are uſually very bad, ſhew the conſequences of horſes being kept in ſuch an idle, uſeleſs manner. Hence many horſes,

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the young eſpecially, are thrown into fevers and other diſtempers, without due preparation.

This preparation ſhould always be proportionable to the time the horſe has been ſuffered to remain without exerciſe; becauſe the longer he has been inactive, the more damage muſt have been done to the horſe's conſtitution. Therefore a horſe muſt be worked very little at firſt, and the increaſe of his labour ſhould be very gradual, and uſed as it were by way of exerciſe, till you find by his agility and ſpirits he can perform a greater taſk with eaſe and pleaſure.

However, though what I have ſaid is true in general, yet there are exceptions to this general rule; for ſome horſes are of ſo hardy a conſtitution, that ſcarce any thing will hurt them. Errors in feed and exerciſe that will affect ſome horſes, will not extend to all. For there have been horſes that have been kept all the winter in the houſe, and have never gone any further than the watering places, and yet when they have been taken out to work immediately, without any preparation, have never come to any damage. But theſe inſtances are few; and only among horſes that have been brought up hardily: whereas fine, delicate bred horſes muſt needs be great ſufferers by ſuch management. But the worſt of it is, that the event of ſuch a proceeding can never be known without a trial, and therefore it is very dangerous to run ſuch a riſk. I may obſerve farther, that when horſes are bought out of dealers hands, they have generally been pampered and prepared in ſuch a manner, as to make a fair ſhew; and therefore they ſhould be ſuppoſed to be in the ſtate above mentioned, and not to be put to hard labour of a ſudden.

When ſuch horſes as theſe have been bled, the next thing is to lower their diet, but not much, for then they may ſuffer greatly by the contrary extreme, and what was deſigned for a remedy may prove a diſeaſe. Then they ſhould be walked about in the open air, in fine

fine warm weather, if poſſible, for two hours; for when they have been kept long in a hot ſtable, too ſudden a change may prove very prejudicial, eſpecially in the time of rain, for then it is a hundred to one but they catch cold. Sometimes the ſeaſon of the year will not allow room to expect good weather, and then if a horſe is warm clothed, it ſhould be leſſened by degrees, and the ſtable ſhould, by a ſlow progreſs, be rendered more cool. I mentioned before, the pernicious cuſtom of letting a horſe breathe nothing but his own atmoſphere, and keeping him in a ſtable filled with the ſteam and effluvia that fly off from his own body, or from other horſes. One would think ſuch perſons that treat them ſo, never enjoyed the benefit of freſh air themſelves.

In a week or a fortnight's time he may be walked about, two hours in a morning, and two in an afternoon, the farther from home the better, becauſe the air will be more beneficial. You will readily perceive by the encreaſe of his ſpirits, and the agility of his motions, when he will be fit for buſineſs, which ſometimes does not happen till the expiration of a month. But before he is put to his employment, it will be proper to take away more blood, and to give him ſcalded bran two or three times a week, to keep him from growing coſtive; or if he diſlikes it, he may have it raw, mixt with his oats.

When a horſe is to go a journey, he ſhould have his corn very early, that it may be in part digeſted before he ſets out. And then if his conſtitution is good, and he has been watered in the ſtable, he will not want to drink at the firſt water he comes at. After he has eat his corn, he muſt ſtand till he is taken out without any hay. Another ſign of his mending his conſtitution, is the abatement of his ſweating, and when he does ſweat, it ſhould run off like water. For when the ſweating turns to a foam, or makes the horſe look as

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if he was lathered with ſoap, it is always a ſign of a thick ſizy blood.

In general, when a horſe has a ſmooth gloſſy coat, when his legs feel hard, cool, and are free from ſwelling, when he ſtands up in the ſtable, when he has a good appetite to his meat, and if when, after he lies down, he riſes with a good ſpring, and ſhakes himſelf, you may conclude he is in good health, and fit for any buſineſs he may be put to.

Some horſes have their blood ſo vitiated, that it requires a great deal of care and trouble to ſet them right, inſomuch that they will fall lame under very moderate exerciſe, without any ſtrain or violence; and by reaſon of the pain which they feel in their joints and other parts, they are very apt to fall into a ſweat. Theſe horſes, when they grow a little cool by time and moderate diet, ſhould have a purging medicine to carry off the offending humours, and if their appetite is bad, and they feed but poorly, the phyſic ought to be very mild and gentle. He ſhould likewiſe have ſuch things as ſtrengthen the ſolids, invigorate the blood, and increaſe the elaſticity of the muſcles. In this caſe the cordial ball ſhould be given him, which will be hereafter mentioned.

It ſometimes happens that horſes that have been fed plentifully, and yet are enfeebled for want of exerciſe, cannot be recovered without being turned out to graſs, at leaſt not ſo ſoon nor ſo perfectly. The open field is the place deſigned by providence for the ſubſiſtence and reſidence of a horſe. The whole appatatus of ſtables, racks, mangers, hay, litter, &c. are provided for our own uſe, not theirs; that is, we intend thereby to fit the horſes for buſineſs, and to have them ready at hand. Therefore it is no wonder, that a horſe ſhould ſooner recover his health and ſtrength under the guidance of nature, than by all the rules laid down by the moſt rational and experienced farriers, not excepting thoſe who have been educated to heal the diſorders

ders of human bodies, and yet have thought it no diſhonour to change the name of a *phyſician* into that of *a horſe-doctor*. Though one in particular has made himſelf very merry with farriers, quacks, and noſtrum mongers, yet he cannot but know, notwithſtanding all his pretended acquaintance with the mechanical operation of medicines, that the virtues of them all were firſt diſcovered by experience. How could we come to know but by experience that a grain of opium is a ſufficient doſe for a man? And did not the ſame experience teach us, that a horſe might take forty times as much, without damage?

I affirm then, that when a horſe is full of humours, and unfit for buſineſs, there is nothing ſo proper as the open air, the liberty of running about, and good wholeſome graſs to cleanſe his body, and to recover his ſtrength. However, this ought to be done in good weather, for there is nothing ſo bad as to turn a horſe out of a hot ſtable into the fields in bleak weather; for a horſe muſt have a good conſtitution indeed, that can ſtand ſuch a ſhock. Some horſes, however, are turned out in all weathers, without any damage, but then they have been long uſed to it. This is no example for delicate horſes who have been tenderly managed, and who have ſtood long clothed in a warm ſtable. Such as theſe ſhould be firſt prepared, by leaving off the clothing by degrees, by lowering their diet, and accuſtoming them to the open air by little and little every day. But if this cannot be complied with, they ſhould at leaſt have two or three purges to reduce their fleſh, keeping them in the ſtable for a few days, that they may recover their ſpirits. I have already obſerved, that the ſalt marſhes are the beſt for a diſtempered horſe, and there are few miſcarry in thoſe paſtures, unleſs ſuch as are too far gone. Some horſes are turned out for conveniency, and merely to ſave the charge of keeping them in the ſtable; but this is a circumſtance that is foreign to my purpoſe.

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There are ſome horſes that have been very well taken care of, with regard to diet, dreſſing and exerciſe, and yet fall off their ſtomachs without any viſible reaſon. When this is the caſe, we may conclude there is ſome latent diſorder: and if the particular nature of it is not diſcovered by the ſymptoms, the beſt way will be to turn the horſe out to graſs, for the opening and laxative nature of this will ſooner effect a cure than any medicine can do, that is applied at random. Likewiſe horſes that have been bred in places where they have been much uſed to graſs, are apt to pine for want of it: which may be known by their being parched and dry in the graſs-ſeaſon, mangling their hay, and when they ſee any green fields, by looking wiſhfully after them, continually craving to ſatisfy their appetite therein. Theſe ſhould be indulged for a month at leaſt, and may be made uſe of at the ſame time, if they are turned into paſtures near at hand.

Horſes, who through hard labour and bad uſage grow ſtiff in their limbs, with ſwelled legs and ſtaring coats, ſhould be turned out to graſs as ſoon as poſſible, which will ſooner bring them to themſelves than any phyſical method, though ever ſo judiciouſly managed. Lean horſes that have done growing, may reaſonably be ſuſpected not to be quite ſound, as well as thoſe that do not ſhed their coats kindly, or in their proper ſeaſon; and it will be neceſſary to ſend them to the ſalt marſhes, or at leaſt to ſome meadow on the ſide of a river. The ſame rule may be obſerved for thoſe who are juſt recovered from a fit of ſickneſs, for nothing recovers their appetite and fleſh ſo ſoon as graſs. When horſes have had a ſurfeit, which has been improperly treated, ſo as as to occaſion them to peel, which may be diſcovered at the roots of the ears and other places about the head, nothing will bring them to themſelves ſo well as ſpring-graſs, which muſt

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ſometimes be repeated yearly; and yet when the caſe is very bad, this will unhappily fail.

In general, graſs is proper for horſes that have a lameneſs from diſorders in the muſcles, and hurts of the tendons or ſinews, when they happen to be ſhrunk; for thoſe that have been fired for lameneſs upon the joint or ſinews; for horſes that have hard, brittle hoofs; for thoſe whoſe feet are cut to pieces for the cure of the quitters; for thoſe who have their feet worn down by travelling, or bad ſhoeing; for thoſe who have been cured of the farcy, till the ſcabs and ſcurf fall off, and their limbs grow limber; for horſes that have been long coſtive; and for colts and young horſes.

But when the cauſe of a horſe's lameneſs lies in the joints; or when it ſhifts from one ſhoulder or limb to the other, which is a ſign of the rheumatiſm, graſs is not ſo proper, unleſs when they are turned out in this laſt caſe when the weather is warm, into ſalt marſhes, or a dry common, or into a field where there is no pond, but only a ſhallow rivulet running through, that they may not go too deep into the water. Likewiſe theſe ſhould be bled and purged before they are ſent to graſs, and take medicines to thin the blood.

Soiling of a horſe, is the giving him herbage, that is young, tender, and full of ſap, ſuch as green barley, tares, clover, or what the ſeaſon produces, in the houſe. Thoſe that are moſt commonly ſoiled are ſtoned horſes, becauſe it is hard to find any incloſure that has fences ſtrong enough for them in the open air. And there is no great occaſion for this, becauſe all the diſorders for which a ſtoned horſe is generally ſoiled, may be remedied by giving him ſtraw inſtead of hay. But if he is lame and muſt be turned out on that account, it muſt be in a place with an exceeding good high fence, otherwiſe he will not be confined. Green barley, before the ear is formed, is the beſt for ſoiling horſes, it being then moiſt and full of ſap; for when it becomes dry, it is hard of digeſtion. Tares and clover

clover muſt alſo be young, and cut once a day, or oftner, for when they are old and dry, they render the horſe coſtive, which is attended with heavineſs of the eyes, loſs of appetite, reeling, and other bad ſymptoms. If this has been unwarily given, emollient clyſters muſt be injected, which will bring away the hardened excrements. But it muſt be remembered that I am ſpeaking of horſes which ſtand in the ſtable, for when a horſe has ſufficient exerciſe, by working or otherwiſe, theſe bad effects will not be produced. Sometimes this kind of herbage has brought on all the ſymptoms of a ſurfeit, with breakings out of ſeveral parts of the body, which evidently ſhews the difference between new hay, and that which, by undergoing a fermentation, has had its juices exalted. This alſo ſhews the reaſon why the herbage ſhould always be cut freſh as well as young; for as the deſign of ſoiling a horſe is to cool and purge him, this end can never be anſwered by giving him any thing that will tie him up, and conſequently render him more hot. Not that all horſes will purge alike by the ſame management, which is owing to their idioſyncraſy or particular conſtitution. Beſides, that which purges one horſe by ſtool, may work upon another by urine, and yet have the ſame ſalutary effect.

When horſes loſe their fleſh, and grow weak by ſoiling, their diet muſt be changed for one more ſolid, otherwiſe he will be ſome time before he is brought back to his former ſtrength. When a horſe bears this treatment pretty well, and when his diet is to be changed, he ſhould have ſome very good bran mixed with a ſmall feed of oats, and his hay ſhould be ſprinkled with water when put in the rack, and his allowance enlarged by degrees, with exerciſe. This method will keep his body open, which is of ſingular uſe after ſoiling. He muſt likewiſe be littered only at night for the firſt fortnight, and then he may be dreſſed and curried as uſual. All theſe precautions are contained

tained in this ſhort rule, *That all ſudden changes, from one extreme to another, ſhould be avoided as much as poſſible.* Some horſes are ſo hardy as to endure any thing; but as this can only be known by the event, no man in his ſenſes will run the hazard of a trial.

The management of horſes, when they are taken up from graſs, muſt be different according to the time they were there, and according to the ſeaſon of the year. If a horſe has run only a few weeks in the ſpring, there is little care to be taken afterwards; but if he has been out all the ſummer, or for a whole year together, a particular treatment is required, eſpecially in the laſt caſe. For then he muſt have bran and chopt ſtraw mixt with his corn, and now and then a feed of ſcalded bran, for a fortnight, to keep his body cool and open, for otherwiſe he will be coſtive, which is always attended with heat and other diſorders. After this, his corn may be given him without mixture, a little at a time, and often, with plenty of water, not forgetting exerciſe in the open air. I believe there are very few ſo ignorant, as to be told, that when the rains come on in the latter end of ſummer, fine-ſkined, delicate horſes ſhould be taken into the houſe; much leſs that they ſhould not be ſuffered to remain out all the winter. Horſes that have been ſent to graze in ſalt marſhes, may generally be taken up and put upon buſineſs directly, at any time of the year, as well as thoſe from dry commons. The longer a horſe has been out in a common paſture, the more his airing and exerciſe ſhould be increaſed when he is taken up, and his diet ſhould be changed in the manner above-mentioned, in ſtables where the air may be let in at pleaſure; for a cloſe, damp ſtable, with ſtagnating air, will produce various diſtempers. Some give their horſes liver of antimony to keep their bodies open, but this is needleſs, if they are treated as above directed. However, if the horſe is taken up in the beginning of winter with a cough, he may be allowed an ounce of *crocus metallorum*,

metallarum, now called crocus of antimony, in a day, and no more, which will promote a moiſture on the ſkin, which is all that is required. Some think it beſt to begin with ſulphur and crude antimony in fine powder; or crude antimony with gum guaicum, and afterwards the *crocus metallarum*. When horſes have been taken up from paſtures wherein the graſs has been forced by dunging the ground, as it can never yield very good nouriſhment, the antimonials will be proper to ſweeten the blood. Some, when the horſes are full of fleſh, purge and bleed, and even rowel them before they turn them out to graſs, but I think ſuch management altogether needleſs, eſpecially in the ſpring, for then the graſs itſelf is the beſt purge that can be given. When horſes taken up from graſs have their legs ſwelled by ſtanding in the ſtable, it will be proper to purge them, but not till after their impoveriſhed blood has been mended with good diet: and then the purge ſhould be mixt with cordial and diuretic ingredients, otherwiſe they will do more harm than good. Sometimes it will be proper to give them diuretics mixt with ſtrengtheners, to brace up the ſolids, and to evacuate the abounding ſerum. For poor and watery blood, which is always generated by bad paſtures, will render a horſe weak and foggy, and unfit for ſervice, till his ſtrength is reſtored by proper medicines and diet. Rowelling will indeed bring off the waters, for it is generally attended with a flux of humours upon the part; but then they often prevent the digeſtion of the iſſue, and endanger a mortification. Therefore it will be the ſafeſt method to uſe purges and diuretics, with ſteel powders and other ſtrengthening ingredients, together with a nouriſhing diet and exerciſe.

When horſes ſtand much in the ſtable without ſufficient exerciſe, if their eyes look heavy and dull, or red and inflamed, or when their lips and inſide of their mouth are hot, yellow and inflamed, with mangling

of their hay; it will then be proper to bleed, and leſſen their allowance till they have more exerciſe. Bleeding is alſo proper for young horſes, when they are ſhedding their teeth, to prevent fevers. The beſt time for bleeding is the cool of the morning. But I ſhall ſpeak of this particularly, after the treatment of running horſes.

Of RUNNING HORSES, *and their Treatment.*

THERE is no general rule for the ſhape of running horſes, ſome preferring thoſe of a fine ſlender make, and others of a ſtrong full body; therefore a medium between theſe extremes ſeems to me to be beſt. The ſize ſhould be fifteen hands or upwards; but then he muſt be ſtrong in proportion, and at the ſame time very briſk and active, not clumſy. The colour depends much upon fancy, but a dark bay, with black eyes, is preferred by ſome. Stars and ſnips are not eſſential to the goodneſs of a horſe, but moſt prefer a horſe with ſuch marks, provided he is in other reſpects equally good. The head ſhould be ſmall, the forehead flat, the ears large, and not placed at too great a diſtance from each other; and he ſhould play with them backwards and forwards alternately, it being a ſign of health. His eyes ſhould be full and ſprightly. His noſtrils wide and thin. His jaw-bones, near the throttle or windpipe, ſhould be at a good diſtance aſunder, that they may not by ſqueezing his windpipe affect his breath, by the pulling in of his noſe. His throttle ſhould be looſe and diſengaged.

The neck ſhould be well-ſhaped, of a moderate length, and then he will fetch his breath with greater eaſe; which he cannot do if it be very long, becauſe it renders his windpipe circular, and then the wind can-

cannot paſs backward and forward ſo freely. The lungs ſhould be ſound and large; but we are not able to judge of their ſize, but by way of analogy. Therefore if the horſe has a capacious cheſt, with a large and looſe windpipe, we conclude the lungs have a formation agreeable to our wiſhes. For thoſe who are but moderately verſed in anatomy well know, that any animal with a narrow cheſt can never have room for a free expanſion of the lungs, and without this there muſt always be a kind of oppreſſion in breathing. And therefore in running horſes this is a circumſtance that ought never to be overlooked. Some judge of the capacity of the cheſt, by his having the make of a greyhound about his breaſt; and yet ſome round-barrelled horſes have been known to perform very well. For which reaſon we ſhould not merely conſider the depth of a horſe in the girthing place, but the true meaſure which is over the higheſt part of the horſe where the ribs join; and then the leng h of the girt will help to determine the capacity of the cheſt. If he has this quality, and is a ſtrong, nimble, well-moving horſe, there is no doubt, but with good keeping and exerciſe, he will be able to run thro' his courſe.

A running horſe ſhould never leave his legs behind him, as the jockeys term it, but ſhould bring his haunches under him when he gallops; beſides, his fore-feet ſhould not be lifted far off the ground, and then he will run with great eaſe to himſelf, and be moſt likely to perform what is expected from him. Some think this is not ſo well when the ground is ſoft; but we readily find, that he lifts up his feet in proportion to that, if he has but ſufficient ſtrength.

The ſhoulders upon the chine ſhould be moderately thin and narrow; I ſay, moderately; for if they ſhould be too thin, he would not be able to carry his rider. The ſhoulder-blades ſhould riſe in due proportion to the top of the withers, meeting equally, and not playing up and down under the ſkin, for then they are too

looſe by not being ſufficiently connected to the ribs, and the horſe is rendered weak. Therefore, when the ſhoulder-blades meet exactly at the top, and are kept in their proper ſituation by the muſcles which are placed between them and the ribs, it is no matter how thin they are at that place, provided the counter is not too full and large, for then he will throw out his fore-legs, and keep them too much aſunder.

The back of a running horſe ſhould be rather long than ſhort, and then if he is broad filleted, he will be able to ſpring forward the better. Broad filleted horſes are thoſe that are full of fleſh on their fillets or loins. He ſhould neither be round barrelled, nor very flat rib'd, but between both. His haunches ſhould be large and wide, as being a ſign of ſtrength. The croup, I mean the part between the dock and the reins, ſhould be pretty ſtrait; that is, it ſhould not have too great a fall: the thighs ſhould be full and ſtrong, but not too fleſhy. The paſterns ſhould be proportionably long, and he ſhould ſtand upright upon them; for the horſe whoſe paſtern-bones are long will make the longer ſtrokes when he gallops. The fore hoofs ſhould be pretty large, ſmooth, and flattiſh.

The choice of a good ſtallion and mare, for the breeding of running horſes, is univerſally acknowledged to be neceſſary; but there are ſome rules to be obſerved in the affair of generation, which are not ſo commonly known, and therefore I ſhall take notice of them in this place. And firſt it may be obſerved, that mares who are over fat do not retain ſo well as thoſe that are moderately fleſhy. A ſtallion ſhould be ſix years old at leaſt, and he will perform very well till he is fifteen, nay, ſometimes, till twenty, as has been found by experience. The mares ſhould never be under three, otherwiſe they will breed ſmall puny colts, which never make good horſes; and they are beſt when they have had two or three colts at due diſtances of time. A mare ſhould never be brought to the ſtallion

lion while ſhe is bringing up her foal, for this will ruin the mare, ſhe not having ſufficient ſtrength to breed one while ſhe is giving ſuck to another without hurting her conſtitution. Once in two years is enough for any mare to take the ſtallion. The beſt month is June, that they may foal in May, when there is plenty of graſs, for by that means the mare will be better enabled to yield plenty of milk. The ſtallion ſhould be never ſuffered to ſerve above two mares in a day, for when they cover eight, ten, or a dozen, as is the cuſtom on market-days, they can never be ſuppoſed to generate ſtrong, healthy colts.

The foal ſhould be ſuffered to run with its mother a whole year, that is, from the time of its being foaled, till there is good graſs the following ſpring. In the winter they ſhould be houſed, and turned out to graſs in the ſummer, till they are paſt three years old, and then they will be ſtronger and better ſhaped. The paſture ſhould be dry and airy, with room ſufficient to rove about in; together with a watering place. The chief ſecret in raiſing fine horſes in cold countries, conſiſts in keeping them warm in winter, feeding them with dry meat, and turning them out in ſummer to dry paſtures. For if you take two colts, begot by the ſame ſtallion, upon two mares equally beautiful, and keep one of them warm in winter time, feeding him with ſhort, ſweet hay, and a moderate quantity of corn, till he is paſt three years old, he will be almoſt as well ſhap'd as his ſire; and if the other is ſuffered to run winter and ſummer in the fields, till he is the ſame age, he ſhall have his head big and thick, his ſhoulders loaded with fleſh, and ſhall in ſhape and ſize become perfectly like a cart-horſe. Hence the neceſſity appears of keeping the colt in the houſe in winter, with good dry food, if you intend to have beautiful horſes.

While they are in the houſe, you ſhould endeavour to make them as gentle and familiar as poſſible, and

then there will be no great difficulty of backing them; and it will be eaſier to break them ſtill, if you give them a little corn now and then in the fields, and accuſtom them to come to you of their own accord upon ſuch occaſions. At the age above-mentioned, he ſhould be firſt ſet upon his bit in as gentle a manner as poſſible, and while this is doing, he ſhould have a very eaſy load tied upon his back, and that will prepare him to carry the rider. By ſuch means as theſe, with care and pains, the moſt ſtubborn colts may be managed and broke. They may be inured to the bit ſoon after they are weaned, for then they are more eaſily maſtered, nor can they do themſelves any harm, while they are in the colt halter. But if nothing be done till they are four or five years, their ſtrength and weight will render the taſk much more difficult. Beſides ſome large, ſtrong, ungovernable horſes have broke their necks by running back, when put into the colt-halter. When they are broke to the bit, they ſhould be kept to exerciſe pretty often, and then they will take every motion you would have them very readily. Some may object againſt putting a weight on the back of a foal, leſt it ſhould make him ſway-backed; this, indeed, might be the conſequence, if the burden was very heavy; but from a light weight there can be no manner of danger. If ſomething was made in the ſhape of a boy, it would be ſtill better, for then they would be accuſtomed to ſee ſomething over their heads, which would prevent their playing any tricks when they are firſt mounted by a rider.

When horſes are deſigned for running, they ſhould not be put to that ſport at four, becauſe the tendons or ſinews of their legs have not gained ſuch a due conſiſtence and firmneſs as to prevent their being eaſily overſtretched, whence proceed claps of the ſinews and windgalls. Therefore it is much ſafer not to make uſe of them in that way till they are turned of five. The ſtalls the colts are placed in ſhould be large in pro-

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portion to their ſize, and paved with a very eaſy deſcent, for when their fore legs ſtand too high, their hind legs will be apt to ſwell; which will turn to the greaſe unleſs you have a very careful groom indeed. The beſt food for ſuch a horſe as this, may be ſix parts of good oats, and one part of ſplit beans, with a handful of wheat put into each feed, and then he will be fit for a race at any time, without any further preparation. It is a very pernicious cuſtom to be frequently purging of horſes, for it weakens their conſtitution, depraves the blood and humours, and hinders digeſtion. Every purge abrades in ſome degree the mucus of the inteſtines, procures an extraordinary ſecretion of the bile or gall, and of the pancreatic juice. Therefore nature muſt needs languiſh under this loſs, when the drains of theſe ſalutary fluids are too frequent; for unleſs they are exiſting in a ſufficient quantity to mix with the aliments, the digeſtive powers muſt needs be weakened, ſince they are abſolutely neceſſary for the elaboration of the chyle.

What I have ſaid relates to frequent purging; but as for giving phyſic on particular occaſions, there can be no objection againſt it. Thus, when a horſe has been at dry meat for a month, without due exerciſe, it may be proper to give him the following purge.

Take of Barbadoes alloes an ounce and a half; of calomel a dram; ginger and cloves of each two drams; of ſyrup of ginger enough to make them into two balls, and roll them in liquorice powder.

The balls are for one doſe, and muſt be given early in the morning, and waſhed down with a quart of warm ale mixt with treacle. When he has ſwallowed this doſe, he ſhould be tied up to the rack for an hour, putting ſtraw in the manger, to prevent the ſlabber that may fall from his mouth from falling into it. After this, he ſhould be kept in the houſe all day, and he may be fed as uſual, only leſs in quantity, and his wa-

ter ſhould be a little warmed, with bran in it; for cold water will ſometimes occaſion gripings.

Some authors cry out very much againſt roſinous purges, and particularly ſcammony, affirming they adhere to the coats of the inteſtines, and often cauſe fatal diſorders. This, indeed, may be true of ſcammony, for ought I know; but then it is owing to the deletorious quality of the medicine, and not to its being roſinous: for it is well known that gum guaiac, which is a roſin, and common roſin will produce no ſuch effect; not to mention roſinous ſolutions in ſpirit of wine, which are now frequently given inwardly without the leaſt bad effect. But whatever cauſe ſuch like effects may be owing to, they had beſt be avoided without giving them at all, for there is ſafe phyſic of various kinds, ſufficient for every intention for which purges are given. The ſuppoſition, that violent draſtic purges of this kind are moſt beneficial, if they could be given ſafely, is a great miſtake; for whatever takes off the ſtimulus, and prevents their entering the blood, will render them proportionably uſeleſs. I know ſome mechanical gentlemen pretend, that purges act only by ſtimulating the inteſtines, and urging them to diſcharge the contents of their glands, but this is a great miſtake; and to convince theſe gentlemen, if they are to be convinced, let one take a doſe of rhubarb, and then obſerve the colour of his water, which will be much ſtronger than uſual; or if this is not ſufficient, let him ſwallow two or three grains of elaterium, and he will find a ſtrange irritation of his blood-veſſels, even to his very fingers ends. Let ſuch explain how theſe effects can be produced, without the purge enters into the blood. Theſe mathematical phyſicians would be thought able to apply the abſtruſe problems of geometry to the animal œconomy, and are very fond of the mechanical practice of phyſic, when at the ſame time they do not underſtand the powers of the lever, the ſcrew, and the pully, ſo much as a common

mon carpenter. Had theſe doctors known that every draſtic purge has a deleterious or poiſonous quality, perhaps they would have been more modeſt, and have attributed the miſcarriages of their patients or horſes to its proper cauſe. Therefore the only directions that ought to be given about ſuch violent cathartics, is to adviſe the leaving them off entirely.

Some adviſe, after the horſe has taken one purge, to give him two or more, with the interval of a week between each; but I am of opinion, that if the horſe is kept to his daily exerciſe in the open air, there can no ſuperfluous humours remain that require purging: it is inactivity, the want of motion and full feeding that accumulate humours in the body, and therefore the beſt way is to prevent the cauſe, and then the effect will certainly follow. It is true, that ſome horſes will have too much fleſh, though exerciſed ever ſo regularly; but this can ſeldom be the caſe, yet if it is, he ſhould be rid till he is in a ſweat, and when he is brought into the ſtable, it ſhould be promoted by throwing a thick blanket over him from head to tail, and letting him ſtand ſo a conſiderable time. If the ſweat runs off the horſe like water, it is a good ſign, but if it is frothy, it is looked upon as a bad omen, and that he is not fit to run. Some again think, when a horſe has run a heat without ſweating, he has not been pinched or pinned down, but this is a miſtake, for it may happen from his being hard run, or from being run above his wind.

Before a horſe is taken to his exerciſe, his heels ſhould be rubbed with dubbing, which may be had at any currier's, and ſhould be waſhed off every time he returns, not with cold, but with warm rain or river water; and his heels and legs, all round the fetlock joints, muſt be rubbed dry and clean with good ſtraw. After which a little more may be put on, and this will preſerve him from the ſcratches which is the forerunner of the greaſe. Likewiſe the feet ſhould be ſtuffed with

with cow-dug, and the outside of the hoof greased with hog's lard, otherwise they will grow hard and brittle with standing long in the stable.

When a horse's tail shakes and trembles after a heat, it shews he is hard pinched, and when he often shifts and changes his feet, it is a sign his legs are tired; but if he looks lively after a heat, pricking up and playing his ears, it denotes he will run again as well, or better, though his tail should tremble. If a horse attempts to piss, and cannot, after a heat, it promises no good, but if he can perform it without straining and with ease, the contrary. After each heat the horse may have white-wine and water to wash his mouth with; yet some give them a pint of mulled sack, but this is too strong, unless he has been used to it before; and then it is a bad custom, for that must be most agreeable to a horse, which approaches nearest his natural way of living. Then the horse should be walked about with his cloaths on, till he is quite dry, otherwise he will be apt to be faint and sick, and refuse his feed. But if this happens in the evening, when the weather is cold, it will be dangerous to keep him out too long; for if the pores which are now open, be closed too soon by external cold, the matter of perspiration will be shut in, and a plethora will ensue, which is the parent of many diseases.

When the horse is in the stable and quite cool, you may give him the size of a hen's egg of the following *cordial ball*, dissolved in a pint of small white wine made luke-warm, and then tie him up for an hour, before he has any thing else.

Take of liquorice powder four ounces; anniseeds and cummin seeds, of each two ounces; of sugar candy dissolved in fennel water, four ounces; of crude antimony in fine power, two ounces; of coltsfoot leaves two ounces; of turmeric in fine power, an ounce and a half; of oil of anniseed half an ounce; of saffron two drachms; of wheat flour enough to bring it to the consistence of a stiff paste:

paſte: theſe ſhould be beaten well together in a marble mortar, and then put into a bladder cloſe tied up for uſe.

The common doſe of this is an ounce early in the morning before exerciſe or watering. Some preſcribe two ounces of ſulphur without antimony, but as antimony contains a great quantity of ſulphur, and as this mineral and its preparation have been found, by long experience, to be very friendly to the nature of horſes, I am of opinion, that this ball, ſo compounded, is better than any other hitherto made publick; for I have found by experience, it will prevent or cure moſt diſeaſes, except fevers. *Markham*'s cordial balls, once in very high eſteem, are made thus:

Take of anniſeeds, cummin-ſeeds, fenugreek-ſeeds, carthamus-ſeeds, elecampane and coltsfoot, all in very fine powder, of each two ounces; of flour of brimſtone two ounces; of Spaniſh liquorice-juice, diſſolved in half a pint of white-wine over the fire; of oil of anniſeeds an ounce; ſallad-oil, honey, and treacle, of each half a pint; beat theſe together with wheat flour, enough to make them into a ſtiff paſte, and keep it cloſe covered in a gallypot, The doſe is a ball of the bigneſs of a hen's egg.

Some will not allow the horſe any corn the night after he has run, for fear of a ſurfeit; but he may be ſafely allowed a pint, and let his water be almoſt lukewarm. Some again will let the horſe drink cold water mixt with oatmeal, upon a ſuppoſition that this takes off the rawneſs of the water; but this is very unſafe, for when the blood and humours have been put in a violent agitation, which diſtends even the leaſt veſſels, the chillneſs of the water ſuddenly conſtringing the veſſels, may prevent the progreſſive motion of the fluids, and cauſe a ſtagnation, which will be attended with an inflammation of dangerous conſequence. This is not built on theory but experience; it being well known, that if a dog or any other animal drinks cold water while he is very hot, an inflammation of

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the lungs is produced, which terminates in death. And though a horſe is not actually hot at the time when the water is given, yet he cannot be ſo much come to himſelf as to make all the fluids return into the uſual channel of circulation, and conſequently if the minute veſſels continue to be diſtended as above, it will be no wonder that obſtructions of the viſcera ſhould enſue, if not an inflammation juſt mentioned.

Formerly, ſome time before a horſe was to run, they uſed to diet him with bread made of equal parts of beans and wheat, after it was three days old, mixt with his oats; and the nearer the time of running, the greater the allowance: ſo little were they acquainted with the nature or power of digeſtion.

However it will be neceſſary to know when the horſe is in health; for if he ſhould be otherwiſe, it would be no wonder if he ſhould deceive your expectation. Therefore a horſe that is ſound and well, has his dung of a moderate conſiſtence, neither ſo thin as to run, nor ſo thick as to come away in ſmall round pellets of a blackiſh colour; for in this laſt caſe you may be ſure he has ſome internal diſorder attended with heat. If it is greaſy without purging, it denotes foulneſs. If red and hard, it is a ſign he has been too hard rid, and is the forerunner of coſtiveneſs. When it is pale and looſe, the horſe will be proportionably weak, if not from an error in his diet.

The urine ſhould be of a pale yellow, not very thin, and of a ſtrong ſmell peculiar to horſes. When it is fine, clear, and high coloured, it is a ſign of an inflammation or a ſurfeit. If it is red like blood, he has been over-ridden. If green, he is inclinable to a conſumption: if with ſtreaks of blood, there is an ulcer of the kidneys. When it is black, thick and cloudy, it portends death.

If a horſe ſweats when he ſtands ſtill in the ſtable, or walks a foot's pace, it is a ſign of weakneſs. If the ſweat is frothy, like ſoap ſuds, it denotes a clammy,

ſizy

ſizy blood, and diſorders ariſing there-from. But if the ſweat after exerciſe appears as if water had been thrown upon him, it is a ſign that his blood is in a due temperament, and that he is healthy and ſtrong; eſpecially if his coat is ſmooth and gloſſy. When he is actually falling into an acute diſeaſe, it may be known by the ſeveral ſymptoms of each, which will be mentioned hereafter.

Of BLEEDING, *and when neceſſary.*

IT is the common cuſtom, when horſes are blooded, to let the blood fall on the ground, by which means it is impoſſible to judge with any exactneſs how much is taken away. For whether it is made uſe of for the prevention or cure of diſeaſes, it is always neceſſary to know the quantity that a horſe ought to loſe, becauſe a horſe may bleed two or three quarts, and ſometimes a pint and a half may be ſufficient.

Bleeding is ſometimes neceſſary for the prevention of diſeaſes, for when they are well fed, without ſufficient exerciſe, they muſt generate too great a quantity of fluids, and then an evacuation of this kind will be proper: becauſe redundance of the blood and humours, which is called a *plethora*, by its reſiſtance weakens the tone and contraction of the heart and arteries, and cauſe a bad habit of body. Want of exerciſe muſt needs diminiſh all the ſecretions, and conſequently many impurities will remain in the blood, which ſhould have been carried off by their proper emunctories, eſpecially by inſenſible perſpiration through the ſkin. Whence it comes to paſs, that if you take blood from ſuch a horſe, letting it run into a veſſel, there will appear a thick ſizy coat on the top, commonly called a buff coat. When this is the caſe, bleeding will en-

creaſe

creaſe the contraction of the heart and veſſels, and reſtore the ſuppreſſed ſecretions, whereby the impurities of the blood may be carried off. But it muſt be aſſiſted with motion and exerciſe, with rubbing and dreſſing, and then the progreſſive motion of the blood will be reſtored, and rendered fit for circulation.

When a horſe, through negligence or ignorance, is ſuffered to continue in this condition till he is attacked by ſome acute diſeaſe, particularly inflammations, it will be next to impoſſible to reſtore him to health, without leſſening the quantity of blood by repeated venœſection. And if at the ſame time the ſtrait gut is filled with ſmall, hard, round bits of dung, which phyſicians call ſcyballs, it will be neceſſary to empty it with a ſmall hand before any thing is given internally. Bleeding is generally neceſſary in acute and continual fevers; as alſo when there is any epidemical fever rages among horſes, by way of prevention, but how far it will be neceſſary after the attack of ſuch a diſtemper, experience only can determine.

Horſes that ſtand much in the ſtable and are well fed, require bleeding now and then, eſpecially when their eyes look heavy, dull, red, or inflamed. Bleeding is neceſſary for young horſes when ſhedding their teeth, and likewiſe in all ſwellings, &c.

Bleeding is neceſſary in all ſwellings that have a tendency to impoſthumate: but then it muſt be before the gathering of the matter, which may be known by its fluctuation when preſſed by the fingers: for then the beſt and eaſieſt way will be to diſlodge the purulent matter, by opening the abſceſs when it comes to a head. Bleeding is almoſt always proper in diſeaſes of the head, ſuch as the vertigo or ſtaggers, inflammation of the eyes, and pains of the head: as alſo in pains of the ſide, colds, falls, bruiſes, ſtrains by hard riding, hurts and wounds of the eyes, and in all caſes where a ſtagnation of the blood is apprehended; particularly in all inflammations of the internal parts, as the liver,

liver, kidney, lungs, inteſtines or bladder, which never can be produced without a ſtagnation of blood in the part affected. Some preſcribe bleeding when the horſe is broken-winded, that is when he is in the fit of *convulſive aſthma*; but this may be doubted becauſe the lungs are not oppreſſed by a load of blood, as in other aſthmas. However there is no danger in the experiment, and if it does not yield relief, it can do no hurt. In diſorders of the legs or beginning of the greaſe, bleeding may be uſed by way of revulſion, but then it muſt be joined with gentle phyſick and proper alteratives, otherwiſe we ſhall labour in vain. Bleeding, when young horſes are ſhedding their teeth, takes away the feveriſh heat.

The ſpring is the propereſt time to bleed in, that is when the warmth of the air begins to expand the blood, and cauſe a turgency of the veſſels: and then it is beſt in the cool of the morning, and the horſe ſhould be kept cool all day. When a horſe is full of blood and humours, you need not wait for any ſeaſon, provided the air be clear and ſerene. As to the age of a horſe, it is not ſo eſſential with regard to bleeding as ſome imagine, if the nature of the diſeaſe requires this operation. However, bleeding ſhould never be repeated ſo often as to render it habitual, for then the omiſſion of it will be dangerous.

When the quantity of the blood is ſmall, attended with weakneſs, bleeding is dangerous; as alſo in convulſive fits of all kinds, when the extremities are cold; and in the fit of an intermitting fever. But when there are cramps and contractions of the hind parts, which force the blood with violence to the head, then bleeding is convenient. Horſes need not always be bled in the neck vein; for when there is any difficulty there, they may be bled in the plate vein, or any other large vein, provided the blood runs freely, and in a large ſtream.

Of

Of LAXATIVES, PURGATIVES, *and* CLYSTERS.

MEDICINES that promote and accelerate the paſſage of the excrements through the inteſtinal canal are of two ſorts, *laxatives* and *purgatives*. The firſt operate very gently, without cauſing any great commotion, or weakening the periſtaltic motion of the ſtomach and inteſtines. They not only carry off impurities from the ſtomach and guts, but when they are given in large doſes, bring off a large quantity of ſerum from the glands of the inteſtines. They are free from an acrid, volatile cauſtic ſalt, which draſtic purgatives abound with, and which is very offenſive to the nerves; but are of an innocent nature, and act by means of a very fine ſtimulating ſalt. Thoſe that are principally uſed are neutral ſalts, cream of tartar, Epſom ſalt, Glauber's ſalt, aloes and rhubarb.

Purgatives have a more violent operation, and when given in large doſes, not only attack the nervous membranes of the ſtomach and inteſtines, but the membranes of the whole body, like poiſon, producing ſpaſtic conſtrictions, violent gripes, frequent ſtools, inflammations of the ſtomach and inteſtines, coldneſs of the extremities and convulſions. Some fooliſhly imagine that theſe ſort of purges act only by ſtimulating the ſtomach and guts, but I ſhewed the abſurdity of this before, to which may be added, that if a nurſe takes a purge, it will operate upon the child ſhe ſuckles; that if an ointment be made with coloquintida, and applied to the belly, it will not only purge a child but an adult. The roſin of jalap often cauſes terrible ſymptoms, not becauſe it is a roſin, for many roſins may be taken ſafely, but becauſe it is of a poiſonous nature, for if it is applied externally to the ſkin for ſome time, it will burn like a cauſtic. Likewiſe the tincture of jalap and ſcammony ſwallowed alone, will burn the fauces and gullet, and produce burning puſtules.

Hence

Hence the danger appears in giving acrid, draſtic purges, inſomuch that a prudent farrier will not give them at all, or with the utmoſt circumſpection, eſpecially ſince ſome of the writers on this art have confeſſed they have had horſes that died under their hands, by giving them theſe deleterious drugs. Nothing ſooner dejects the ſtrength, changes the pulſe, hurts and debilitates the ſtomach and guts, than theſe kind of cathartics. Sometimes they bring on a terrible dyſentery, which no means or medicines have power to ſtop. However in ſome caſes we may venture to make uſe of them, as in the dropſy, for then the inteſtinal fibres have a laxity and a torpor, which ſtand in need of a ſtrong ſtimulus, to force them to the performance of the ſalutary excretions. Likewiſe the palſy and ſleepy diſeaſes ſtand in need of ſtrong medicines to excite the languid motion, and to procure a revulſion from the head.

After what has been ſaid, it will be no hard matter to determine when it will be neceſſary to purge a horſe, nor what kind of purges are moſt proper. However I ſhall lay down ſome general rules, for fear of a miſtake. It is very evident that horſes which are full of fleſh and humours from full feeding and want of exerciſe, will ſtand in need of purging after bleeding. This is beſt done in the ſpring, but when there is great occaſion, any other time of the year will do as well; but the more temperate the weather the better. In which caſe it will be proper to give them ſome feeds of ſcalded bran the day before. It is generally twenty-four hours before it operates, and it ſhould be worked off with warm water mixt with a little oatmeal. The doſe of a laxative is generally about twenty times as much for a horſe as for a man; but as for ſtrong purges, I would not adviſe the giving them at all, unleſs in a caſe or two, which will hereafter come under conſideration.

Purges, I mean laxatives all along, may be likewiſe proper to prepare horſes for hunting, running, or any laborious exerciſe; as alſo for the worms in common looſeneſſes, in ſwelled limbs, in the yellows or jaundice; in diſeaſes of the eyes and head without a fever; lameneſs that proceeds from bad humours; for thoſe that have humours flying about them, which break out in boils or impoſthumes. When horſes have lameneſſes which often remove from one limb to another, purges ſhould be often repeated, with medicines that thin the blood. Laſtly, in want of appetite, whether from bad provender, too often a repetition of ſcalded bran, full feeding, &c. purging is very proper.

When a horſe is fat and full of fleſh, from high feeding and want of exerciſe, beſides bleeding a week before the purge, his diet ſhould be lowered during that time, eſpecially when they have been pampered for ſale. Likewiſe a few feeds of ſcalded bran, as mentioned before, will open the horſe's body and unload the inteſtines, which will render the operation of the purge much more certain and eaſy. However, it is obſervable that all horſes are not purged alike with the ſame quantity of phyſic, nor the ſame horſe at different times of the year. Half an ounce of fine aloes has ſometimes purged a horſe, when it was only deſigned to open his body and no more. Therefore as we can never be ſure what will be the conſequence, it will be the ſafeſt way to give a horſe a ſmall doſe at firſt, eſpecially when he is deſigned to be purged more than once.

An ounce of good ſuccotrine aloes, and a quarter of an ounce of rhubarb, corrected with a dram of ginger, and made into a ball with ſolutive ſyrup of roſes, is a proper purge for the fineſt and moſt delicate horſes. Or take of ſuccotrine aloes, and cream of tartar, each one ounce, jalap powdered two or three drams, ſyrup of buckthorn a ſufficient quantity. Some add aromatic oils, and particularly thirty drops of the chemical oil of anniſeed, but I think very improperly, for this

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will ſometimes prevent the phyſic from working at all. Let any man try the experiment upon himſelf, with a moderate doſe of jalap, and three drops of the oil of cloves, and then if he is purged according to expectation, he will find there is no truth in my obſervation. Some inſtead of rhubarb order the ſame quantity of jalap, which indeed is cheaper, but not ſo elegant and ſafe, and will want more correction. In this caſe, in will not be improper to add the oil of anniſeed.

In ſome inflammatory caſes, when the horſe is in a weak and bad condition, I would recommend the following liquid purge, which though gentle, is both cooling and quick in its operation, and neither heats nor ſtimulates, and is much preferable to the purging balls, viz. ſenna leaves two ounces, ſalt of tartar half an ounce, infuſed in a pint of boiling water two or three hours, then ſtrain off and diſſolve therein four ounces of purging ſalts, and the ſame quantity of cream of tartar. Some horſes may require an ounce of tincture of jalap, or two or three drams of powdered jalap to be added thereto. But this recipe is in itſelf ſo innocent that if it does not operate by the bowels, no danger is to be apprehended, as it will work off by urine.

The beſt time to give a purge is early in the morning in the ſummer, and about eight in the winter; and then the height of the operation will be about the middle of the next day. All the world knows it ſhould be given faſting; and about three or four hours after it, he may have a feed of ſcalded bran; when he has eaten that, he may have ſweet hay, by a little and a little at a time, as his ſtomach happens to ſerve. He may likewiſe have more ſcalded bran once or twice the ſame day; but if he refuſes it as being warm, he may have it raw, provided he drinks a ſufficient quantity of milk-warm water along with it. The water may have a handful of oatmeal mixt with it, or the ſame

quantity of bran ſqueezed into it. But if he refuſes it becauſe it is white, he may have pure water alone.

The next morning betimes he may have another feed of ſcalded bran, if he will eat it; for if he happens to be ſick, which is ſometimes the caſe, he will refuſe it. He may be allowed to drink as much water as he will, with the chill taken off, becauſe it will make the phyſic work the more kindly. Then take him out of the ſtable, and ride him very gently, walking him only at firſt, and then bringing him to trot; but be ſure never make him ſweat. This may be repeated three times, unleſs the phyſic works pretty briſkly, and then twice is ſufficient.

Some clothe their horſe more than uſual during the time of purging, but that renders him more liable to take cold after it is over; and therefore a ſingle cloth is ſufficient, with the hood tied very looſe, and then it may be laid aſide without danger, when he comes to be ſhut up after the purging is ſtopt. At night he may have a ſmall feed of oats mixt with his bran, and the next likewiſe, if his purging continues ſo long. When it is quite gone off, he may be fed with clean oats till the time of the next purge, if another ſhould be thought neceſſary. Coarſe aloes generally make a horſe ſick, and therefore the beſt way is always to give him ſuccotrine aloes. But if he happens to be ſick, and will not touch warm water, you muſt be obliged to allow him that which is cold, otherwiſe the phyſic will not work as it ought to do. Some likewiſe have a natural averſion to warm water, and then they muſt have the ſame indulgence as before.

Since I wrote what is above relating to the drugs moſt proper for purging a horſe, upon conſulting Mr. *Gibſon*, I have met with the following preſcription, which is exactly agreeable to mine, except in the quantity of rhubarb, which I ſtill think to be generally ſufficient. He has omitted the oil of anniſeed, without giving any reaſon for it; but I make no doubt but

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it was conformable to that which I have mentioned, for he treats more accurately than any that went before him on the ſubject of farriery.

Take of the fineſt ſuccotrine aloes an ounce; of ginger grated, a dram; of rhubarb in powder a dram: make them into a ball with a ſufficient quantity of the ſyrup of damaſk roſes.

What he ſays of the price of rhubarb is of ſmall ſignificancy, eſpecially when a horſe of any value is concerned. There are ſeveral drugs which may be conveniently mixt with compoſitions of this kind; but will be more properly ſpoken of under the diſeaſes to which they relate. There are ſeveral bad conſequences which often attend the exhibition of coarſe aloes and other unwholeſome drugs; but as I have not recommended any ſuch, I am the leſs concerned in ſhewing how to remedy thoſe diſorders. I ſhall only obſerve, that when they take away a horſe's appetite, he muſt be treated with cordial and ſtomachic medicines; and that when the purge works very violently, it may be ſtopped in the ſame manner as a looſeneſs, omitting the purgative medicines. When a horſe has caught cold, or taken bad drugs which cauſe him to ſwell, and will not work, then take an ounce of Spaniſh ſoap, with two drams of the oil of juniper, and make them into a ball with a ſufficient quantity of honey. If the horſe is violently griped from phyſick, take of gum-arabick and tragacanth each four ounces, juniper berries and carraway-ſeeds bruiſed two ounces, ſimmer the whole gently in a gallon of water till the gums are diſſolved. Give a quart of it often, or mix it with his water; but if he will not take it in that manner, it muſt be adminiſtered by the drenching horn. Theſe will either eaſe the horſe by promoting urine, or promote the operation by ſtool.

Clyſters may be applied to ſeveral intentions of cure; for ſome are emollient and ſerve to ſoften the hardened dung, as well as to correct and temperate

the acrid, acid, and ſalt recrements: others evacuate the excrements out of the large gut: others ſtrengthen the languid fibres, and help to quicken the periſtaltic motion; others allay the exorbitant motions and ſpaſms of the inteſtines; and others again are uſeful to nouriſh horſes when there is any impediment the uſual way.

Before *emollient clyſters* are made uſe of to ſoften the excrements, a perſon with a ſmall hand ſhould empty the ſtrait gut to make way for the injection of the clyſter, that they have a more certain effect. The things that ſoften dry hard excrements, and correct the acrimony of the humours in the hard guts, are a decoction of ſheeps trotters, or calves feet, water-gruel, fat broth, oils, coarſe ſugar, treacle, a decoction of mallows, marſh mallows, as well roots as leaves, linſeed, fenugreek ſeed and cammomile flowers. All theſe are likewiſe good to relax ſpaſms, which ſometimes prevent the exit of the dung: and mitigate pains of the bowels, eaſe the cholick, and the like.

A principal ingredient in purgative clyſters is ſalt, that is, common ſalt, ſal-gem, Epſom ſalt, and ſal ammoniac; becauſe a handful of common ſalt, for inſtance, will have a more certain effect than ſeveral ounces of purging ingredients. However any of theſe may be compounded with lenitive electuary, electuary of ſcammony, formerly called *caryocoſtynum*, ſyrup of buckthorn, ſena, jalap, which may be mixt with two or three quarts of the decoction of emollient ingredients, or the ſame quantity of fat broth: they ſhould never be very ſtrong, and conſequently coloquintida or the bitter apple is too violent to be ventured upon. When very ſtrong clyſters are wanted, they may be ſafely mixt with emetic wine, or twenty or thirty grains of emetic tartar. When a horſe's dung has an acid ſmell, then Spaniſh ſoap, or common hard ſoap may very properly be mixt with the clyſter: two or three quarts may be injected at once.

Strengh-

Strengthening clyſters are of great uſe when the inteſtines and other parts have loſt their due tone; therefore when the coats of the guts are to be ſtrengthened, carminatives come in play, as carroway-ſeeds, fennel-ſeed, cummin-ſeed, and anniſeed, bay-berries, juniper-berries, and their eſſential oil. In the palſy and ſleepy diſeaſes, rue, marjoram, ſavoury, roſemary, ſage, and lavender flowers will be proper. In cold, low habits, when the blood is poor; the horſe may receive benefit from clyſters made with bitters, ſuch as the tops of the leſſer centaury, carduus benedictus, gentian, rhubarb, tincture of rhubarb, and elixir proprietatis.

Sedative clyſters are very ſerviceable to relax ſpaſms of the inteſtines, and to eaſe pains in the bowels: theſe may be made with oils alone, or they may be mixed with the fat of animals and freſh butter. When the coats of the colon are affected with a violent ſpaſm which leſſens its cavity, the wind will be retained, and violent gripes will conſequently enſue, clyſters compounded with ſuch things as theſe will be very efficacious. If theſe ſpaſms are attended with heat, the clyſters will be beſt made with camomile flowers, elder flowers, or vervain flowers decocted in whey or milk, with a little ſaffron and ſaltpetre, and then mixt with oil of ſweet almonds. In the ſtaggers you may add the ſeed and flowers of piony, and the root of the wild valerian.

Aſtringent clyſters are made uſe of ſometimes to ſtop looſeneſſes, eſpecially when they are violent and have continued ſome time; as alſo when medicines given by the mouth have had no effect. Theſe may be made of pomegranate rind, oak-bark, galls, balauſtines, red roſes, and the like. In the decoction of ſome of theſe you may diſſolve diaſcordium or Venice treacle, for theſe laſt, beſides the ſtrengthening ingredients of which they conſiſt, contain a certain quantity

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of opium, which is generally found very ſerviceable in theſe caſes.

Nouriſhing clyſters are often found to be beneficial when the jaws of a horſe are lockt up in convulſive diſorders, ſo cloſe that nothing can be conveyed to the ſtomach that way. Sometimes likewiſe the throat and gullet are ſo ſwelled and inflamed, that it is impoſſible for the horſe to ſwallow any food till the ſwelling is abated, and conſequently he will be in danger of ſtarving unleſs he is aſſiſted ſome other way. Theſe may conſiſt of broths made with calves heads, ſheeps heads, calves feet, ſheeps trotters, mutton or beef broth with the fat ſkim'd off, milk pottage, riced milk ſtrained, thickened milk, or the like. A quart or three pints at a time will be ſufficient.

All theſe clyſters ſhould be only milk warm, and injected with a pipe at leaſt fourteen inches long, with holes in the ſides like thoſe for men, and ſhould have a bag at the end to ſqueeze it in gently, that the horſe may not ſtart, which they commonly do when they are injected with a ſyringe, which makes them return it immediately. When it is all preſſed out of the bag, you need only hold down his tail cloſe for a minute or two, and then he will retain it as long as is convenient to perform what is expected from it. Examples of all kinds of clyſters may be met with in their proper places.

Some affirm clyſters have no operation beyond the large inteſtines, but this is a miſtake; for by affecting the nervous parts of the inteſtines which communicate with the nerves of the reſt of the body, they not only produce very great effects, but inſinuate into blood and lymph, ſo that a horſe may receive a great deal of nouriſhment by theſe means. Likewiſe we find by experience, that clyſters have a great influence in mitigating the diſorders of the ſmall guts, which may be owing to the ſituation of the colon which ſurrounds them. For they not only are warmed and

cheriſhed

cheriſhed by theſe means, but the ſteam or vapour of the medicine penetrates their coats, and by that means not only conveys its virtues thereto, but to all the contents of the abdomen.

Of Roweling, Firing, Gelding, Nicking, *and* Docking Horses.

ROWELING is an artificial vent made between the ſkin and the fleſh, deſigned to carry off the humours by revulſion and derivation, which are the cauſe of various diſeaſes, and ſerves for the ſame purpoſes as ſetons and iſſues in men. It is of great uſe in diſeaſes of the head, ſuch as ſleepineſs, head-aches, the ſtaggers and diſorders of the eyes, the gutta ſerena, cataract, incipient ſuffuſion, and catarrh; as alſo in aches and pains, cold phlegmatic ſwellings, and humours affecting the legs and other parts.

Some rowel their horſes ſoon after they are taken from the graſs, which may be proper enough if they are not lean or hide-bound, or their blood watery. In this laſt caſe, it muſt not be done before the conſtitution is mended by a nouriſhing diet. For when the blood is poor, and the horſe full of watery humours, there will be a great flux to the part, ſometimes ſo great as to diſcharge ſeveral gallons of water before the rowels have come to a digeſtion. But whether this is not a more ſpeedy and eaſy way to diſcharge the redundant water, than by purging, deſervs to be conſidered; eſpecially as inciſions made in the legs and thighs of men have carried off the waters in a dropſy, when every thing elſe has failed. The only danger is leſt ſuch a diſcharge bring on a mortification, which may happen when the horſe is very low indeed, and then diuretics with ſtrengthening medicines are beſt, with good diet and moderate exerciſe, which muſt

be

be continued till the watery humour diſappears in the ſheath and belly.

Rowels are likewiſe very ſerviceable in pleuriſies and all internal inflammations. In which caſe there muſt be one on each ſide of the breaſt, one on the belly, on the ſame ſide the pain is ſuppoſed to lie, unleſs there is a great motion of the flanks, which may hinder its coming to digeſtion, and then he may be rowelled on the inſide of both the thighs.

Firing is the application of an actual cautery or red hot iron to any part for the removal of ſome diſorder. The firing inſtrument or knife ought to be ſomewhat rounded on the edge, and to be much thicker at the back, that it may retain the heat the longer. You muſt always take care to rub it clean, that no duſt or aſhes may ſtick to it. The time of uſing it is, when the flaming redneſs is gone off. After the operation, the ſeared parts muſt be bathed with ſpirits of wine, and then anoint the place with bees-wax and butter melted together. It is of great uſe in the cure of bone-ſpavins, ſplents, wind-galls, old ſtrains, ring-bones, and jordons, (which is a ſwelling on the outſide of the hock, proceeding from kicks or blows): for the two laſt firing is uſeful, when bliſters have proved ineffectual.

Gelding or *caſtration*, is beſt performed by cutting open the ſcrotum or cod, and after turning out the ſtones, to tie a wax thread round the ſpermatic veſſels, or ſtrings, as ſome call them, to prevent their bleeding, and cut them between the ligature and the ſtone. Afterwards apply pledgits with a digeſtive ointment mixed with ſpirit of wine. When this operation is carefully performed according to this direction, there will be no danger of a great loſs of blood, which is often the caſe when the ſpermatic veſſels are ſeared with a hot iron.

Dock-

Docking, *curtailing*, or *cutting off* a horſe's tail, muſt be performed with a very ſharp, clean inſtrument, and then ſeared with a hot iron. It will be beſt to be caſe-hardened, and very well poliſhed, taking care to clean it from any aſhes or ſcales it may have contracted by putting it in the fire. It muſt not be applied while in a glowing heat, for then the ſparks that may fly off are apt to cauſe an inflammation of the part; at leaſt the burnt part will ſtick to the iron, and come off when it is taken away, and then it will be very hard to form an eſchar. But as this operation puts the horſe to great pain, it is beſt to omit it, and apply ſome ſlices of the agaric of the oak, or the common paff-ball, which will ſtop the bleeding effectually, and then it may be cured as a common wound. *Nicking* the tail of a horſe is an operation deſigned to make him carry it more genteel. There are particular machines or pullies, ſo contrived as to keep the tail up, which may be better comprehended by ſeeing them than by deſcription. The number of the nicks are to be proportionable to the length of the tail, but generally three are ſufficient. When the operation is over, the wounds may be dreſſed with a mixture of powdered roſin, honey, and ſpirits of wine; and a doſſil of tow, dipt in the ſame mixture ſhould be laid between the nick, wrapping the tail up as uſual. The next morning the covering ſhould be cut open down the back part of the tail, and the following morning it ſhould be taken quite off, in order to plait the hair, and ſet the tail. You ſhould let the tail down every two or three days, and bathe the upper part next the rump with hot vinegar, in which a bit of allum is diſſolved, and mixt with honey. If the tail ſhould happen to ſwell, and the hair come off, it muſt be waſhed with a mixture of tincture of myrrh and hot vinegar, or wine, vinegar, and Ægyptian honey. When ſeven or eight days are expired, the horſe ſhould be

ſuf-

ſuffered to ſtand without the machine or pulley for a few hours, that you may ſee how he carries his tail. He muſt likewiſe have his tail kept up a few hours every day, till the wounds are quite healed, or, in other words, till a callus is formed.

Of the DISEASES *of* HORSES, *and their* CURE.

Of the APOPLEXY.

WHEN a horſe has a true apoplexy, he falls down ſuddenly, without ſenſe and motion, except a working of his flanks.

This may be cauſed by any thing that compreſſes the veſſels of the brain; by too great a quantity of blood, when the horſe is fed plentifully, with little exerciſe; by being very much over-heated, ſo as to expand the blood, and render all the veſſels turgid; by any fluid ſhed outwardly on the membranes of the brain, from blows on the head, or falls; by blood or ſerum poured into the brain itſelf, and by its preſſure hurting the origin of the nerves, which is the moſt common cauſe of the apoplexy, and may be either blood or ſerum. This laſt moſt frequently happens to horſes that have poor watery blood.

There are three degrees of an apoplexy; the firſt is when the blood is forced up into the head by any cauſe whatever, and diſtends the veſſels of the brain, ſo as to hinder the free circulation of the blood through it. By this means the horſe's ſenſes may be impaired for a ſhort time, but as the ſtoppage goes off, he gradually comes to himſelf. The ſecond degree is when the ſtagnation continues ſo long, as to let the ſerum ooze through

through the veſſels, which falling upon the ſide of the oblong or ſpinal marrow, cauſe a palſey. The higheſt degree is when the veſſels of the pia mater burſt, and let the blood fall to the baſis of the brain. This is generally mortal.

The *ſigns* which precede an *apoplexy*, are dulneſs, drowſineſs, weak, watery and turgid eyes, feebleneſs, a diſpoſition to reel, a bad appetite, hanging down his head, and reſting it in the manger. When it is cauſed by ſerum in the brain, he has a diſpoſition to rear up, and is apt to fall back when handled about the head. Young horſes are moſt ſubject to this kind, and with proper care may get over it. When the veſſels on the inſide of the brain are burſt by blows or wounds, the horſe will be frantic by fits, and ſtart and fly when any thing comes near him. Something like this may happen from an induration of the membranes of the brain, and then the cure is deſperate. When horſes fall down ſuddenly, with a violent working of their flanks, without power to riſe again, they ſeldom or never recover.

When this laſt happens to be the caſe, the only poſſible cure conſiſts in plentiful bleeding, and therefore ſeveral veins ſhould be ſtruck immediately, one after another, in different parts of the body. His head and ſhoulders ſhould likewiſe be raiſed, with ſtraw put under them. If he ſurvives the fit, ſeveral rowels ſhould be cut, to drain off the humours as much as poſſible.

When the apoplexy happens only from the ſtoppage of the circulation of the blood in the brain, by the diſtenſion of the veſſels from plenty of blood therein, then bleeding will prove a certain cure, even though he ſhould reel and ſtagger, and ſometimes fall down ſuddenly. After plentiful bleeding, his body ſhould be kept open with ſcalded bran, and the uſual quantity of hay ſhould be leſſened. The next day you

may

may give him an aloetic purge, which may be repeated twice more at proper diſtances.

Take of the beſt ſuccotrine aloes an ounce; of the powder of jalap two drams; of cinnabar of antimony half an ounce; of the oil of anniſeed thirty drops: make them into a ball, with a ſufficient quantity of ſolutive ſyrup of roſes.

I have added the oil of anniſeeds to this purge, becauſe it is ſuitable to his diſtemper. On the days free from purging give him the following nervous ball early in the morning.

Take anniſeeds, caraway ſeeds, wild valerian root, lavender flowers, roots of piony, miſletoe, of each two ounces; of cinnabar of antimony an ounce; of Virginian ſnake-root half an ounce; of ſaffron two drams; of oil of anniſeed half an ounce. After theſe ingredients are reduced to a fine powder, mix in the oil, and make them into a maſs for balls, with honey or melaſſes. A ball of the ſize of a pullet's egg is a doſe.

When the horſe has been purged ſufficiently, the ball may be changed for half an ounce of cinnabar of antimony, and half an ounce of gum guaiacum united together with melaſſes, which may be given him every morning for three weeks longer. This, by thinning the blood, and fitting it for circulation, may prevent a relapſe.

Sometimes, as I obſerved before, a horſe's blood may be ſo rarified and expanded by violent exerciſe and hard riding, ſo as to cauſe a temporary plethora, and will diſtend the veſſels of the brain, ſo as to impede the circulation of the blood there, hence the origin of the nerves will be compreſſed, and the influx of the animal ſpirits into the nerves prevented, and conſequently an inability of motion muſt enſue. Therefore it is no wonder that a horſe ſo harraſſed ſhould ſometimes drop down ſuddenly, as though in a real apoplexy, eſpecially upon any ſudden ſtop. This happens more frequently in very hot weather, than at

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any other time, becauſe that greatly promotes the rarification of the blood and humours. Bleeding in this caſe will ſoon bring him to himſelf, unleſs the violence of the ſhock occaſioned by the fall has burſt the fine veſſels in the brain, and then there can be no hopes of his recovery.

Of the STAGGERS, *or the primary aud ſympathetic* VERTIGO.

ALL diſtempers of a horſe which cauſe him to reel, ſtagger, or fall down, are, by ſome, one, or other, called, the *ſtaggers*. Thus, the *apoplexy*, and the *epilepſy* or the *falling ſickneſs*, frequently go by that name. It is a great misfortune that we are not able to diſtinguiſh ſome diſeaſes of the head from others, becauſe we can judge of them only by ſome remarkable ſymptoms. Thus, when a horſe ſtaggers and falls down ſuddenly, and afterwards recovers and gets up, it may either be cauſed by a ſlight apoplexy and epilepſy, or a primary vertigo, which laſt is likewiſe a diſeaſe of the head.

It is remarkable, that almoſt all diſeaſes of the brain are attended with coſtiveneſs, as well as the ſympathetic vertigo: but it is not a cauſe, as ſome imagine, but a ſymptom of this diſeaſe. The cauſe of the *ſympathetic vertigo* lies in the ſtomach and firſt paſſages, which are affected with ſpaſms or convulſive motions, which produce all the ſymptoms of the ſtaggers. For when the ſtomach or parts adjacent are conſtricted, they force the vital fluids to the head, where they ſtagnate among the veſſels of the choroide plexus of the ventricles of the brain, and produce a vertigo. In this caſe, the ſtomach and firſt paſſages are loaded with depraved humours, which generate wind, and hinder di-

digeſtion. Hence the bile or gall becomes vitiated, and cannot ſufficiently ſtimulate the inteſtines, to diſcharge their contents. This being the caſe, it is no wonder there ſhould be an obſtinate coſtiveneſs. This diſeaſe may likewiſe proceed from worms, which by gnawing the inteſtines, irritate them to convulſive motions.

The *primary vertigo* is likewiſe cauſed by a ſtagnation of the blood in the carotid arteries, and the veſſels of the brain which conſtitute the choroide plexus. Hence horſes that are full of blood and humours are moſt ſubject to this diſeaſe; eſpecially when they are high fed, with little or no exerciſe. This may be likewiſe owing to the ſerum of the blood when it is accumulated in the blood-veſſels of the brain; and therefore horſes that have poor watery blood may be afflicted by this diſtemper. Likewiſe violent blows on the head may produce either a ſtagnation or an extravaſation of the blood and humours, whence a more laſting and troubleſome vertigo enſues.

Beſides the principal ſymptoms already mentioned, the horſe has a dull look, is weak, with prominent eyes, his mouth is generally ſtiff, but not quite ſhut up, as in other caſes; he ſtales but little, and his breath is ſhort on the leaſt motion. But the principal ſymptoms, as obſerved before, are coſtiveneſs, reeling and ſtaggering, and ſometimes falling down.

The vertigo, which proceeds from a diſorder of the ſtomach, will ceaſe as ſoon as it is cleanſed. When it is cauſed by ſpaſms of the lower part of the belly, attended with a weakneſs of the nerves, it is not ſo eaſily cured. But the primary vertigo is more out of the reach of medicines than the other two.

The intentions of cure are to diſcuſs the blood and humours ſtagnating in the head, and to make it circulate freely in the lower parts; as alſo to ſtrengthen the tone of the nervous ſyſtem, regard being had to the cauſe which produces the ſtagation.

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When the diſeaſe is recent, and the body is full of blood and humours, with a ſtrong beating of the heart, you ſhould take away blood freely, and repeat it till the ſymptoms are mitigated. If the horſe is coſtive, the ſtrait gut ſhould be emptied by a ſmall hand, and then proper clyſters ſhould be often injected. They may be made with a decoction of ſena, or of mallows and marſh-mallows, or fat broth; to three pints of either, a pint of linſeed oil may be added, or a pound of brown ſugar. They muſt be injected milk-warm, and repeated every day till he dungs freely. When the horſe has been long coſtive, theſe will bring away ſurpriſing quantities of dung. This done, you may venture to give him the following laxative drink.

Take lenitive electuary and Epſom ſalt, of each four ounces; of common treacle two ounces; of ale three pints. Put in the ſalt firſt, which will readily diſſolve without heat; then the ſugar, and laſt of all the electuary. It muſt be given him in the morning upon an empty ſtomach, and will work before night; for Epſom ſalt has a more quick effect than any thing elſe. It muſt be made blood warm, and he muſt have water or warm gruel to drink after it.

It may be repeated three times, allowing two or three days between each, giving him an opening diet and proper exerciſe. When the vertigo proceeds from worms, he muſt be treated as hereafter ſhewn under that title. To ſtrengthen the nerves, he may take the nervous balls mentioned in the laſt ſection.

Of the EPILEPSY *or* FALLING SICKNESS.

THE *epilepſy*, as I have juſt obſerved, is, by ſome, called, the *ſtaggers*, and not very improperly, becauſe it is attended with the principal ſymptoms of

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that diſeaſe. It is cauſed by an irregular motion and circulation of the fluids in the veſſels of the brain, and thereby hurting the ſenſes and voluntary motions. This will better be conceived, when we conſider, that the arteries, when they enter the head, are diveſted of their ſtrongeſt coat, retaining only a thin membrane, which is void of all ſenſe and motion, and is diſtributed into the cortical part of the brain and cerebellum, that it may ſupply a ſpirituous lymph to the nerves and nervous parts, neceſſary for ſenſe and motion. The blood that is left paſſes through the veinous ſinuſes to the dura mater, and from thence by the jugular veins back to the heart, which is the fountain of the circulation. The dura mater is of a ſingular ſtructure, for it conſiſts of a peculiar apparatus of nervous and muſcular fibres: theſe paſs along partly in right, and partly in oblique lines, becoming more arched and circular about the lateral ſinuſes. The nervo-carnous fibres reach like pillars from one ſide of the three greater ſinuſes to the other, where there are alſo oval cells which enter therein, diſpoſed according to the ſeries of the veins. Theſe fibres not only hinder the blood from dilating the cells too much, but by their ſucceſſive contraction accelerate the progreſs of the blood into the jugular veins. The uſe of the pillars is by their motion to attenuate the thick blood which has loſt its lymph; and the little cells ſerve inſtead of valves, to prevent the regreſs of the blood into the veins. Hence theſe ſinuſes have a ſyſtole and diaſtole not much unlike the heart.

Beſides this, the dura mater has a tonic, or, rather, elaſtic motion, in the ſame manner as the reſt of the nervo-muſcular coats and membranes of the whole body, which are animated by the animal ſpirits and arterial blood. The dilatory and conſtrictory motion of this membrane, which covers the brain and cerebellum, the ſpinal marrow, and all the nerves of the body, not only promotes the circulation of the blood thro'

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the head, but the better ſecretion of the ſpirituous fluid undulating in the nerves. For when this elaſtic membrane is raiſed and expanded by the pulſe of the arteries of the brain, the nervous pipes are rendered more fit to receive the animal ſpirits; becauſe when after its expanſion is increaſed by the appulſe of the arterial blood, brought by the internal and external carotid and the vertebral artery, and the influx of the nervous fluid, it then contracts by its own proper ſpring, and in ſome meaſure compreſſes the cortical part of the brain, whence an exceeding fine fluid is more conveniently driven into the cortical part of the brain and into the origin of the nerves. While theſe ſeveral motions are carried on in a due manner, the circulation of the blood thro' the head will be more regular, and the functions that depend thereon will be rightly performed. But when theſe motions are impeded, grievous diſeaſes of the head will begin to ſhew themſelves.

Theſe things being premiſed, it will appear, that when a groſs or too great a plenty of blood ſtagnates within the ſinuſes of the dura mater, the ſyſtaltic motion depending thereon will be impeded, as well as the regreſs of the blood to the heart. Hence too great a quantity of blood will be carried thereto by the arteries, and ſo congeſted as to hinder the entrance of the fine, ſubtile, ſpirituous fluid; inſtead of which they will be filled with more groſs elaſtic particles of an expanſive nature, which will diſturb the ſenſes and motions, and paſs into the fine tubes of the brain and nerves. Beſides, the blood ſtagnating in the ſinuſes of the dura mater and the jugular veins will dilate the veſſels too much, whence the nervous fibres will be compreſſed, which will cauſe a ſpaſtic ſtricture of this membrane, which is the proximate and principal cauſe of an epilepſy. For by this means the fine arteries of the pia mater will be compreſſed, as well as the cortical ſubſtance of the brain; whence the animal ſpirits

not being under the direction of the will, muſt ruſh with a greater force into the brain and nerves. And as the dura mater is the root from whence all other membranes take their beginning, there muſt needs be a great conſent between them, which conſiſts in the mutual communication of an inordinate motion. Therefore when there is a ſtrong ſpaſm of the dura mater, thoſe nerves which chiefly ſerve for ſenſation will be greatly conſtricted, and the whole influx of the animal ſpirits will be intercepted. Hence it will follow, that in a complete epilepſy, all the ſenſes, as well internal as external, will be ſuſpended. On the contrary, there will be a greater and ſtronger impulſe of the nervous fluids into the organs deſigned for motion, whence the terrible diſtenſion, contraction, ſucceſſion and agitation may be deduced. Beſides, it is certain that as the eighth pair of nerves, called the *par vagum*, whoſe branches are diſperſed to the principal bowels and nervous parts, for the performance of ſenſe and motion, they will, while the animal ſpirits ruſh therein with greater violence, be hurried by a conſent, into violent, ſupernatural motions, the heart will begin to beat, the pulſe will be ſtrong and unequal, and the ſpittle will come foaming out of the mouth.

I have been the longer in explaining the nature of this diſeaſe, becauſe it is little underſtood, and leſs attended to. I ſhall now come to the part which more immediately concerns practice.

When the cauſe of an epilepſy exiſts in the brain, it is then ſaid to be *idiopathic*; when it proceeds from the fault of ſome other part, and is transferred to the head, it is then called *ſymptomatic*. The idiopathic generally ariſes from external violence, ſuch as wounds and bruiſes of the head: ſometimes from a fracture or depreſſion of the ſkull, which are commonly fatal: and after death we uſually find ſtagnated blood or corrupt ſerum between the dura mater and the pia mater, or between the ſkull and the dura mater, or ſplinters

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of bones fixt in the dura mater. This may be likewiſe cauſed by the obſtruction of the jugular veins, or the ſinuſes of the dura mater, particularly that called the *falciform*, with viſcid blood or polypous concretions.

The *ſymptomatic epilepſy* proceeds from an impetuous tranſlation of impure blood to the head, when the ſtomach and inteſtines are affected with ſpaſms and inflations, while the perilaſtic motion is greatly injured and perverted: or an impure, acrid, cauſtic matter may be conveyed to the dura mater by the arteries, which may ſtimulate that membrane to a ſpaſm. Sometimes it may happen from the injudicious healing of old ulcers, or by driving impure matter back which was thrown out on the ſkin.

When a horſe has a fit of an epilepſy, his eyes are fixt in his head, he reels and ſtaggers, and is inſenſible to every thing; he voids his dung and urine without knowing it; then he reels round and falls down ſuddenly, and ſtretches his legs out as if he was dead, only there is a briſk pulſation of his heart, he continues to breathe, and has a quick motion with his flanks. Sometimes his limbs are convulſed, and his legs are thrown about in a very violent manner. When the fit is going off, he commonly frothes at the mouth.

Some have miſtaken the epilepſy for the gripes, but very injudiciouſly; for in this laſt diſtemper the horſe is often up and down, rolls and tumbles, and is very circumſpect in his motions, leſt he ſhould irritate the pain; and if he ſtretches himſelf out at any time, it is but for a little while.

The cure muſt be begun by making a revulſion by plentiful bleeding, which may be repeated as occaſion requires. Then give him a ball made with wild valerian root, roots of piony, roſemary, lavender flowers, miſletoe of the oak, the leſſer cardamoms, aſſa fœtida, the oil of hartſhorn, caſtor, oil of amber, ſeldom forgetting cinnabar of antimony. The following

examples will ſhew the method of compounding them.

Take of wild valerian root two ounces; of cinnabar of antimony half an ounce; oil of amber two drops; common treacle enough to make them into a ball. This may be given once or twice a day at firſt, and afterwards once in two or three days, with the following drink after it.

Take valerian root, miſletoe, piony root, the tops of roſemary, of each an ounce; chop them ſmall, and pour a quart of boiling water over them; let them ſtand an hour or two, and then pour off the infuſion, to be given the horſe after the ball. Or,

Take wild valerian root and miſletoe of the oak, of each an ounce, of aſſafœtida half an ounce: make them into a ball with honey. Or,

Take of wild valerian root an ounce, of aſſafœtida half an ounce, Ruſſian caſtor and oil of amber, of each two drams, of common treacle enough to make them into a ball

Inſtead of the drink above, you may boil three ounces of miſletoe in three pints of water, and pour off the decoction in the water he is to drink, which the horſe will not refuſe. While he drinks this water, the ball may be thus compounded.

Take wild valerian root, miſletoe of the oak, piony root, and conſerve of lavender flowers, of each half an ounce, of common treacle or honey enough to make them into a ball.

But you muſt never forget in theſe diſorders to keep the horſe's body open, firſt by clyſters, afterwards by laxative powders, repeating them occaſionally when required.

Take the dried leaves of mallows and camomile flowers, of each an ounce; of miſletoe two ounces; boil them in a ſufficient quantity of water, that there may be three pints of the decoction when ſtrained, to which may be added four

four ounces of linſeed oil, and as much coarſe ſugar; mix them for an emollient clyſter, to be injected warm.

A purge may be made with a quart of the ſame decoction, four ounces of lenitive electuary, and as much Epſom ſalt. Sometimes a horſe muſt be under a courſe of theſe for a month.

Of CONVULSIONS.

THE cauſe of an epilepſy, as has been explained in the foregoing ſection, is ſeated in the brain, whereby the nerves proceeding from thence are affected. But convulſions proceed from any cauſe that may affect the nerves of the ſpinal marrow, which occaſion a ſpaſm or cramp of the nervous, muſcular and membranous parts.

This univerſal cramp is ſometimes occaſioned by bots in or near the ſtomach, and then it ſeizes the horſe of a ſudden; but when it proceeds from diſorders of the internal parts, he will firſt fall off his ſtomach, after which he ſoon grows feeble and diſpirited, and becomes ſhort-breathed with the leaſt exerciſe. But as theſe ſymptoms are common to other diſeaſes, this is ſeldom known till it is too late to apply remedies.

When this diſeaſe is cauſed by bots, it generally makes its attack in April, May, or June, among horſes that are pampered for ſale, with little or no exerciſe. Bots in the ſtomach are of an orange colour, of the ſize of the large maggots, and not unlike them, only they have ſharp prickly feet on each ſide of the belly. Their ſeat is round the lower orfice of the ſtomach, immediately under its inner coat, and when they begin to be animated, they burſt through it with the tail foremoſt, while their heads remain firmly fixt in the muſcular coat. The ſymptoms of convulſions from this cauſe, are an eager look, as tho' the horſe

rack, while his ears are prickt up, and his tail cocked: then his neck grows ſtiff, cramp'd, and almoſt without motion, and in a few days time, if he lives ſo long, ſeveral knots will ariſe on its tendinous parts, and the muſcles of the whole body will be ſo affected, that he looks like a ſtatue fixt to the ground, with his legs ſtiff, wide and ſtradling: his eyes become fixt, with a deadneſs of his looks, and his ſkin is tight on all parts of his body: he pants continually, with ſhortneſs of breath, and ſnorting and ſneezing: the ſhortneſs of breath continues, unleſs timely relieved, till he drops down dead. The ſymptoms are much the ſame when it proceeds from impoſtumations, ulcerations, or other hurts of the diaphragm and viſcera.

For the explanation of this diſeaſe, we muſt conſider that the ſpinal marrow, like the brain, conſiſts of a cortical and medullary ſubſtance, which are continued from the brain, and are wrapt up in one common membranous covering, which adheres to the vertebræ of the back; as alſo with three other coats, the inner and middlemoſt of which proceed from the pia mater, and the outermoſt from the dura mater, and is lodged in the cavity of the vertebræ. It has arteries and veins diſpoſed throughout its ſubſtance. It receives the arteries from the vertebral, and the deſcending trunk of the great artery. The blood is carried back by the veins, firſt into the vertebral ſinuſes, from thence into the veins of the vertebræ and others, from whence it is poured into the vena cava aſcendens. The function of the ſpinal marrow is to ſend out thirty pair of nerves, and two ſpinal nerves which tend to the par vagum. Theſe nerves go firſt to the muſcles of the neck, breaſt, back, belly and limbs, and ſerve for the motion of the parts. Then they are diſtributed to the viſcera of the cheſt and lower belly, and to their membranes. Laſtly, ſome large branches go to the face and head, contributing greatly to their motion.

Now whoever compares this cauſe with the ſymptoms

toms of the diſeaſe, will readily find the cloſe connexion that there is between them. But here it is to be noted, that the convulſive irritation of the ſaid parts may happen two ways: for either the coats of the ſpinal marrow are primarily irritated and convulſed, and may bring the parts connected with it into the ſame condition: or theſe parts may be firſt affected with ſpaſms, and may communicate them to the ſpinal marrow: whence again they will proceed to other parts and regions. Hence the firſt may be called *idiopathic convulſions*, and the other *ſympathetic*.

Hence we may perceive, that convulſions may be cauſed by a vitiated blood, particularly when the matter of internal ulcers is abſorbed by the circulating fluids, it will render them acrid, and fit to produce this diſeaſe. Again, theſe ſpaſms may ariſe from a vellication of the coats of the ſtomach and inteſtines. For all the nervous membranes are very prone to irregular motions, and ſometimes from a very ſlight cauſe. For ſince the ſtomach has its nerves from an external branch of the eighth pair, as well left as right, and ſince it has branches which proceed from the firſt and ſecond vertebræ of the back; and becauſe the inteſtines likewiſe have branches from the internal branch of the eighth pair, concurring with the intercoſtal, and forming the meſenteric plexus; the reaſon is plain why the ſpaſms of thoſe parts are communicated to the membranes of the ſpinal marrow and to the whole nervous ſyſtem. Hence it appears that nothing can be more likely to produce theſe convulſions, than worms gnawing the ſtomach. The ſame may be ſaid of ulcers of the internal parts, and particularly the diaphragm or midriff, which is a tendinous and nervous part, and conſequently is very liable to be irritated, and to draw the nerves of the ſpinal marrow into conſent; eſpecially as the branches of the nerves which are diſtributed on this part communicate with thoſe of the ſtomach, and have the ſame derivation.

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The cure of this dire diſtemper depends in a great meaſure on the cloſing or ſhutting up of the horſe's mouth; if this happens immediately, as it ſometimes does, the caſe is deſperate, for nothing can be given him by the mouth, and clyſters will not reach the part affected. But if the mouth continues in ſuch a ſtate, that he is ſtill able to take a medicine, there is hopes of a cure. When a horſe is ſeized ſuddenly in the manner above deſcribed, that is lately come out of the dealers hands, we may ſafely conclude that the diſeaſe proceeds from bots in the ſtomach: and then before his mouth is ſhut up, give him the following ball.

Take of mercurius dulcis half an ounce; of aloes ſix drams; of conſerve of wormwood enough to make them into a ball, which muſt be rolled in wheat flour: let it be waſhed down with a hornful or two of warm water.

This being done, we muſt immediately proceed to medicines that will allay the ſpaſms, and relax the ſpaſmodic ſtrictures of the nervous parts. The following drink is very efficacious for this purpoſe.

Take valerian root, miſletoe of the oak, camomile flowers, of each two ounces; of ſaffron two drams: pour five pints of boiling water upon them, and when it is almoſt cold, put in four ounces of the fetid tincture, and two ounces of the tincture of caſtor, which muſt be ſhaked together every time it is uſed. The tinctures are to be had at the apothecaries.

Gibſon directs half an ounce of aſſa fœtida, and the ſame quantity of caſtor in ſubſtance, but every apothecary's apprentice knows, that boiling water will take up little or nothing of the virtues of theſe drugs, eſpecially the former; and therefore the drink, as I have ordered it, is much more powerful. You may give the horſe three hornfuls at a time, and repeat it three or four times a day. The outward parts may likewiſe be rubbed with a proper liniment, as in the palſy.

The

Take the green oil of the ſhops, oil of bays, opodeldoc or the ſaponaceous liniment, of each four ounces; of oil of amber two ounces; of flour of muſtard ſeed two ounces; mix them well together.

This muſt be rubbed well into the ſpine of the back and loins; the cheeks, temples, neck, and ſhoulders; and particularly into thoſe parts which ſeem to be moſt affected with the cramp. Or if you mix the ſaponaceous liniment or opodeldock with the flour of muſtard ſeed, it will have a good effect; as will friction alone with a haircloth, eſpecially about the head. But it will be beſt if two or three are employed at once to rub the horſe; and if this is carefully done, the horſe may be brought out of the fit without any other external application.

If by the management above directed, the horſe gets the better of the fit, the cure may be completed with gentle aloetic purges, which are very good for worms alone, though not ſtrong enough for the firſt doſes. The common farriers fill them full of rowels, and inject clyſters. But theſe laſt, as I obſerved before, cannot reach the ſeat of this diſorder; and rowels, if they would do any good, have not time to digeſt. However, when the horſe's mouth is ſhut up ſo cloſe that nothing can paſs that way, it may be poſſible to relax the ſpaſms with antiſpaſmodic clyſters, and to nouriſh him with milk porridge injected in the manner of a clyſter ſeveral times a day, and made with a full proportion of oatmeal. The clyſter may be as follows.

Take rue, ſavine and garlick, of each an ounce; of camomile flowers two ounces; boil them in two quarts of water to three pints; and while it is pretty warm, add of the fetid tincture two ounces; of oil of amber half an ounce; of common treacle four ounces; mix them. In boiling the ingredients, the garlick ſhould not be put in ſo ſoon as the reſt. Let it be injected milk warm.

And here it will be neceſſary to obſerve, that opium has a power of taking off cramps of the muſcles more

more than any thing elſe; and therefore if you boil the above ingredients in three pints of water, reſerving a pint to diſſolve half an ounce of opium in, which muſt be done when it boils; you may add this ſolution to the clyſter, and perhaps gain your end ſooner than any other way.

When a horſe falls into this diſtemper from internal ulcers, he ſeldom recovers, becauſe it is a ſign they have made a great progreſs. However, it is neceſſary to obſerve, that mercurius dulcis in this caſe is of no uſe. But if the diſeaſe is moderate, cephalic remedies and rowels may be ſufficient to work a cure.

When this diſorder proceeds from the blood, it is the mildeſt of all, and may be cured in the ſame manner as the epilepſy, with cephalic medicines and cinnabar balls. The purge that may be given to a horſe when he is a little recovered from the fit, may be as follows, and may be repeated once a week, for three weeks or a month.

Take of ſuccotrine aloes an ounce; gum guaiacum and extract of wormwood, of each half an ounce; of ſaffron a dram; beat them together, and make them into a ball with ſyrup of ginger.

Of the LETHARGY.

THAT we may underſtand the nature of a lethargy the better, it is neceſſary to conſider how it is cauſed; which may be by any thing that hinders the influx of the animal ſpirits from the cortical part of the brain into the medullary part. This may happen from too great a relaxation of the blood-veſſels in the brain, which renders its motion more languid, and conſequently leſs fluid; this may be the caſe of old horſes; or, from a difficult circulation of thick im-

impure blood through the brain, whence the brain is compreſſed. This is the caſe of horſes that are plethoric; that is, that are high fed, with little exerciſe; or, from too great a collection or extravaſation of ſerum in the membranes of the brain. This is evident, becauſe a ſuppreſſion of urine is always attended with ſleepy diſorders.

The ſymptoms of a lethargy are the reclining his head to one ſide, at the ſame time reſting his mouth in the manger, with a ſtupor and inſenſibility: he often falls aſleep with his meat in his mouth, and is apt to ſwallow his oats whole when he is rouſed, and immediately falls aſleep again.

When the diſeaſe is moderate, and the horſe young, with a tolerable appetite, eſpecially if he ſeems to retain his ſmell and taſte, it may be eaſily cured. For if he eats up a maſh freely, without doſing over it, you may judge that his ſenſes are pretty good. If a thick white matter runs from his noſe, it may yield relief. The ſame when he drinks freely, or if he lies down and gets up carefully.

But if the horſe is old and paſt his ſtrength; if he ſeems to be ſtupid and ſenſeleſs; if he dungs and ſtales ſeldom, or in his ſleep; and if a matter running from his noſe ſticks like glue to his noſtrils, and as it increaſes turns ropy, looking reddiſh or greeniſh, with an increaſe of the lethargy: all theſe are very bad ſigns, and ſhew that it is ſcarce poſſible for the horſe to eſcape.

In the cure, we are to endeavour to rouſe the horſe from ſleep; to remove the difficulty of the circulation of the blood in the brain; or the ſtagnation or the extravaſation of the blood or ſerum; and to reſtore the ſtrength of the veſſels and membranes of the brain.

When the eyes look full and red, they ſhew that the diſeaſe is ſanguineous, not ſerous, and therefore blood may be taken away, but not too much. Then give emollient clyſters three or four days running, thus,

Take

Take of the dried leaves of mallows four ounces; of dried camomile flowers two ounces; of sweet fennel seeds an ounce: boil them, and strain off the liquor, then add half a pint of linseed oil, and four ounces of common salt.

The salt is added as a stimulus to cause an irritation, which sometimes has a very good effect.

As soon as you can, after bleeding, give him the following drink, which is both pectoral and cephalic.

Take of wild valerian root four ounces; rosemary, sage, sliced liquorice root, and leaves of colts-foot, of each an ounce: pour two quarts of boiling water upon them and let it stand till it is cold, then strain it off.

After some time, you may add four ounces of the fetid tincture, which is made by dissolving four ounces of assa fœtida in a quart of spirit of wine. This will tend to quicken his senses, retrieve his spirits, and promote the circulation of the blood through the brain. After two or three days, or before, if his nose begins to run, you may blow a little of the following sneezing powder up his nostrils with a quill.

Take of the dried leaves of asarabacca an ounce; of white hellebore a dram: mix them and make a powder.

When the sleepiness proceeds from a serous cause, it may be used at any time; but if the eyes look red and full, it must not be blown up till that symptom is removed.

When the horse begins to come to himself, and his strength and spirits return in some degree, then give him the following ball every morning fasting for a fortnight or three weeks.

Take gum guaiacum, assa fœtida and cinnabar of antimony, of each half an ounce: and beat them into a ball with a sufficient quantity of oil of amber.

When these things have been used as directed, it will be proper to cleanse his body with two or three laxative purges, mixing such ingredients with them as will thin the blood, and then the cure will be perfected.

Take

Take of ſuccotrine aloes an ounce; of gum guaiacum half an ounce; of cinnabar of antimony two drams; of oil of anniſeed thirty drops: make them into a ball with ſolutive ſyrup of roſes.

Of the PALSY.

THE palſy is one of the principal diſeaſes of the head, which affects the brain and nerves, and therefore it will be proper to give an account of animal motion, that we may the better underſtand the nature of this diſorder.

The animal ſpirits are an exceeding fine fluid, which is ſecreted from the arterial blood by the brain and cerebellum, and paſſing into the medullary ſubſtance and ſpinal marrow, is ſent from thence into the fine tubes of the nervous fibrillæ, then into the nerves in all the parts of the body. When there is a ſufficient quantity of this fluid, which is ſent with a ſufficient force into the nerves and nervous membranes, it renders them tenſe, by which means they are ſaid to have a proper tone and elaſticity or ſpring, whereby ſenſe and motion are duly performed in all parts of the body.

A nerve which is naturally tenſe, is always full of this fluid, and therefore when its extremity is ſlightly touched, the motion is communicated to the brain, and the common ſenſorium, with a wonderful ſwiftneſs. This is called the action of the ſenſes. The muſcles are the inſtruments of voluntary motion. Theſe conſiſt of tendinous and fleſhy fibres, which are every where interwoven with the nervous fibrillæ, which perform their functions in the following manner; The tendinous and fleſhy fibres ought to be ſo filled with lympha, that they may in ſome meaſure impede

impede the motion of the blood through the muſcles. This inflates the belly of the muſcle, and renders it ſhorter, whereby its end, with the part connected to it, is moved towards the place from whence it takes its riſe. While this continues, the muſcle feels harder to the touch, and reſiſts the impreſſion of the finger: hence we may conclude, that there is required greater force, and a more plentiful influx of the animal ſpirits for the performance of motion than for ſenſation.

Theſe things being premiſed, it plainly appears, that when the influx of the animal ſpirits into the nerves is leſſened, their action as well for ſenſation as motion, will in part be aboliſhed. From this fountain thoſe diſeaſes flow, which come under the title of paralitic diſorders. By this we underſtand a diminution of motion or perception, which depend upon the influx of the animal ſpirits into the nerves being diminiſhed.

There are various degrees of this diſeaſe; for when the voluntary motion and animal functions, together with all ſenſation and the underſtanding ceaſe, the aminal will fall down as though ſtruck with a thunderbolt. But ſometimes, though the ſenſes and underſtanding remain unhurt, the voluntary motions and animal functions ceaſe, or at leaſt the ſenſe of feeling is either languid or quite aboliſhed. The firſt caſe is called an *apoplexy*, and the ſecond the *palſy*. The apoplexy has three degrees; the firſt takes away all ſenſe and motion; the ſecond the uſe of the underſtanding in all voluntary motions; the third is a ſlight degree of the ſecond, and ſometimes ends in a palſy. This diſeaſe has been treated of already.

That kind of a palſy which is called a *hemiplexy*, takes away the ſenſe and motion of all one ſide of the body. A *particular palſy* takes away all ſenſe and motion from a particular part, and is ſeated in the ſpinal marrow. A *ſpurious palſy* is cauſed by a tranſlation of ſome humour to the nerves, and only deprives the part of motion.

When

When a *hemiplexy* does not ſucceed an apoplexy, it begins with a vertigo, or the ſtaggers, and terminates by degrees in the loſs of ſenſe and motion, and the ſound ſide is ſometimes affected with ſpaſms or cramps. A particular palſy is often preceded with ſlowneſs of motion, with tremors of ſhakings, and takes away the uſe of ſome particular limb or member. The part affected is ſoft, flaccid, and cold to the touch. But we ſhould take care not to miſtake the rheumatiſm and pains of the joints for the palſy; for thoſe are attended with pain, the cramp, and convulſive twitchings.

Sometimes the particular palſy affects the hind parts, while thoſe above the diaphragm continue ſound; and if they loſe ſenſe as well as motion, the dung and urine will come away involuntarily. Sometimes there may be a palſy of the eyelids, and then he cannot raiſe them up; ſometimes of the top of the gullet, and then he cannot ſwallow; as alſo of every other part of the body, which may be known by the function which is hurt.

When a horſe is ſeized with a hemiplexy, he always falls down ſuddenly; and though he has the uſe of his limbs on one ſide, it is impoſſible to ſet him on his legs; in which caſe it is not worth while to attempt a cure; for though he ſhould in ſome degree recover, he will never be fit for uſe afterwards. When the hind parts are affected with the palſy, it is a very troubleſome diſeaſe, becauſe the horſe muſt be ſupported behind till the uſe of his limbs are recovered in a great meaſure. When the palſy affects one limb only, the danger is not ſo great, eſpecially if it is accompanied with an involuntary ſhaking. As for the numbneſs of the limbs, occaſioned by the horſe's lying out late in cold grounds, it is not the palſy properly ſo called, but rather a kind of rheumatic diſorder. When the horſe is very old, though the palſy ſeizes but one particular part, it is very hard to cure. But if the horſe is young, and the diſeaſe proceeds from bad diet or other

improper management, there is no danger of his recovery by the uſe of good medicines.

The cure of this diſeaſe muſt be attempted with bleeding, rowels, and ſtimulating embrocations, outwardly and inwardly, with the ſame medicines as are given in the apoplexy and convulſive diſeaſes.

The following oil is very penetrating, and may greatly contribute to the cure, when rubbed into the part affected, after it has been well rubbed with a dry woollen cloth. This is abſolutely neceſſary, for ſometimes fractions alone will perform a cure, if done well and frequently.

Take the green oil of the ſhops and oil of bays, of each four ounces; of oil of amber three ounces; of camphire an ounce: rub the camphire with the green oil in a mortar till it is well mixt, then add the reſt gradually.

Sometimes the ſaponaceous liniment or opodeldoc, which is made with ſpirits of wine, camphire, and ſoap, will be ſufficient of itſelf; or you may mix an ounce of flour of muſtard-ſeed, with half a pint of the ſaponaceous liniment. When the muſcles about the face, temples, or mouth are affected with ſpaſms, ſo as to be drawn awry, theſe parts muſt be embrocated with the above oil.

Of a GUTTA SERENA.

A GUTTA SERENA is a blindneſs or abolition of the ſight, when no fault appears outwardly in the eye.

Many lay the fault on the obſtruction of the optic nerve by a thick lymph as the cauſe of this diſeaſe; in ſuch a manner as to hinder the afflux of the animal ſpirits to the retina. But it does not appear from anatomy, that the nerves have canals or tubes wherein the nervous fluid may run in a direct path. Nor is the lymph

lymph which is derived from the brain thick or viſcid. Hence it is ſcarcely probable, that there ſhould be an obſtruction of the optic nerves from matter proceeding from the brain. In this caſe there is only a compreſſion of theſe nerves, which hinders the influx of the animal ſpirits, and by that means procures a palſy therein. Hence it follows, that a gutta ſerena is a palſy of the optic nerves.

It is plain from anatomy, that the optic nerve, as ſoon as it enters the boney orbit of the eye, and has penetrated the perioſteum that inveſts it, then depoſits the outward covering which it received from the dura mater to form the ſclerotid coat; that the ſecond covering derived from the pia mater goes to conſtitute the uvea, the ciliary proceſſes, and the pupil; as alſo that the medullary ſubſtance ſerves to make the ſoft, pulpous coat called the retina. This laſt, it is well known, receives the pictures of viſible objects, and propagates them by the optic nerve to the common ſenſory, to excite the idea of viſion in the mind. Now, to perceive objects, there is need of the tenſion of the nervous parts, which conſiſts in a due influx of the nervous fluid, as has been ſhown in the former ſection. But becauſe in a gutta ſerena there is a palſy of the optic nerve, and conſequently of the retina, uvea, and the ciliary proceſſes; it follows, that theſe parts can neither be tenſe nor receive the rays of light; and the pupil will likewiſe be amplified and dilated on account of the relaxed ciliary proceſſes. This is the only defect that appears in the eye; for the muſcles of the eye and all other parts are in a good condition, becauſe they receive branches from other nerves that are not affected.

The cauſe, therefore, which by compreſſing the optic nerves induces a palſy, is ſeated either about the thalami, or at the parts which are placed at their entrance into the orbits of the eyes. Or it may be in the optic nerve or rather in the blood-veſſels, which lie in

its middle part. Theſe veſſels, which proceed from the carotid arteries, as well as the other branches which encompaſs the orbit, may be ſtuffed with ſtagnating blood, and ſo preſs and diſtend the medullary tubes of the nerves, and hinder the return of the lympha through the veſſels which ſurround the nerves. This ſeems to be the cauſe of a periodical gutta ſerena, which, when the ſtagnation of the blood is removed, immediately ceaſes. Moreover, it appears very probable, that the ſpurious gutta ſerena is produced by ſerum which is ſhed within the coats of the eye, eſpecially the ſclerotic, and ſo compreſſes the optic nerve. And this being preſſed with the afflux of the nervous fluid, a part of it will gain a paſſage, and leave ſight enough to diſtinguiſh light from darkneſs.

All theſe effects may be brought about by violent external cauſes, by blows on the head, by a concuſſion of the brain, by fulneſs of the blood, by violent ſtraining, by a vitiated blood, by a great loſs of blood and other vital fluids.

With regard to the prognoſtics, if it be inveterate and perfect, and the horſe old, there is no hopes of a cure. But if it be recent and imperfect, the cauſe being only in the coats of the optic nerve, and the ſubject young, it may be ſometimes cured. Likewiſe the periodical gutta ſerena, which depends only on the ſtagnation of the blood, may alſo be removed. But that which ſucceeds a palſy or other diſeaſe of the head, is ſcarcely ever vanquiſhed.

When a gutta ſenera is coming on, the horſe at firſt appears ſhy, eſpecially to ſtrangers; when he is brought into the light he pricks up his ears, and raiſes up his head as if he were looking at the light: he lifts up his feet when he walks, and ſets them down with fear. When this diſeaſe is quite compleated, he will run his head againſt a wall.

The cure of the gutta ſerena is a very difficult taſk; becauſe it is hard to preſcribe remedies that reach the diſtemper.

diſtemper. However we muſt try to diſcuſs the ſtagnating humour which compreſſes the nerves, and afterwards to ſtrengthen the parts affected. When the horſe is poor and low, and his blood watery, we may judge ſerum to be the cauſe, and then he may be fired on the poll, becauſe an actual cautery, by exciting pain, will communicate a tremulous and vibratory motion to the fine fibres of the brain, and remove the ſtagnating humour, eſpecially if rowels are made in the neck at the ſame time, which may draw off the humours from the part affected.

On the other hand, if this diſeaſe is cauſed by a ſtagnation of the blood, as when a horſe is plethoric, then the cure muſt be begun by bleeding in the vein neareſt the parts affected, and his body ſhould always be kept open by emollient clyſters and laxatives. When the diſeaſe is inveterate, we muſt have recourſe to cinnabar balls as the only anchor of hope, which may be compounded in the following manner.

Take valerian root and fennel ſeed, of each an ounce; of cinnabar of antimony half an ounce; of oil of anniſeed thirty drops; make them into a ball with common treacle, and give the horſe one every morning, except the days on which he takes laxative phyſic.

The two firſt ingredients are very good to ſtrengthen the veſſels, and together with the cinnabar are very efficacious in opening obſtructions.

Beſides the above, it will be proper to blow ſneezing powder up the noſtrils, which may be either that mentioned in a former ſection, or the extract of the wood of guiacum, which will purge the head very ſtrongly.

Of MOON-EYES, *or* LIPPITUDES.

A LIPPITUDE is the diſtilling of a ſalt, ſharp humour from the eyes, with pain, redneſs and

dimneſs of ſight, ſometimes cloſing the eye up. This diſorder has been called a *moon-eye*, from the ſuppoſed influence the moon has over this diſeaſe; or rather becauſe it ſometimes returns periodically, and as it has been thought, at certain phaſes of the moon.

This diſorder is but ſlight when there is no blemiſh in the ball of the eye, and though there is a ſwelling of the eye-lids with redneſs of the eye, if the running grows thick and condenſes.

This diſeaſe generally attacks a horſe when he is paſt five or coming ſix, at which time the eye-lids begin to ſwell, ſometimes ſo much as to be ſhut up, and a clammy water runs down the cheek, ſometimes in a greater, ſometimes in a leſſer quantity. Sometimes the humour is ſo hot and corroſive as to ſcald the cheeks and to fetch off the hair as far as it reaches. The veins of the temples, under the eye, and on the ſides of the noſe are generally turgid and full of blood.

It does not attack both eyes always at once, but ſometimes one and ſometimes the other. In ſome the eyes run but little, and in others not at all; but then it is not properly this diſeaſe; eſpecially if the eyes look deadiſh, ſunk, and periſhing. Sometimes the eyes are pretty clear; at others thick and muddy, of a wheyiſh or duſky yellow colour. And yet at beſt they are never ſprightly, but look more weak and dead than they did before the diſeaſe began.

The ſeat of this diſeaſe is generally in the glands of the eyes, the chief of which is the lachrymal gland, placed in the orbit in the upper part of the greater angle of the eye, which pours out a ſalt ſerum that is abſorbed by the lachrymal points, and conveyed by a peculiar duct into the noſe. Likewiſe in the leſſer corner of the eye there are ſeveral ſmall glandulous bodies, which diſtil a thick ſerum. Under the eye-lids there are other glands placed in a row, which ſend out an humour more glutinous than either of the former. Now the excretory ducts of theſe glands conſiſting of nervous

vous and fibrous coats, may eaſily be irritated by a ſalt ſubtile ſerum, and ſo be criſped up or contracted by ſpaſms, inſomuch that the reflux of the blood which is brought by the ſmall arteries, may be in ſome degree prevented by the conſtriction of the veins, while the glandulous tubes may be enlarged by the quantity of the ſecreted humour, and from hence may proceed a great effuſion of a ſalt, ſharp ſerum.

The redneſs and pain which attends this diſorder, may be attributed to the acrimony of the humour, which in this caſe greatly abounds with ſalt of a peculiar nature, and quite different from that which is obtained from any other excremental fluid.

With regard to the prognoſticks, this diſeaſe, as was above obſerved, is apt to go and come, but without any certainty in its periods. Sometimes the running will ceaſe in a week, ſometimes in a fortnight, three weeks, or a month, and then it will return again, but the time is uncertain, and indeed depends much on the method that is taken to cure this diſeaſe. If this diſeaſe is ſuffered to go on, or cannot be cured, in two years it terminates in a cataract, when the humour is ſo hot, ſharp, and viſcid, as to inflame the eyes and glue them up. When the eyes are of a moderate ſize, properly ſhaped, and the continuance of the diſorder after it returns ſhort; when they look clear when the humour ſtops, and the ſight continues good, there are great hopes of recovery. When the humour diſtils only from one eye without ſhifting to the other, there is reaſon to expect a cure, or at leaſt to ſave one eye. When the diſtemper proceeds from a violent cold, in conſequence of which the eyes may be cloſed up, and the diſorder may return ſeveral times, yet with proper management, blindneſs may be prevented. The eye ſometimes may ſeem darkened with a ſort of a yellow cloud, which may go off again without danger to the ſight, provided there is no natural defect, and it diſappears in a ſhort time.

But the more certain ſigns of recovery, are the ſhort continuance of the running, and the ſlow return; when the inflammation and ſwelling abates; when the eyes that ſeemed to ſink and decay, grow plump and full; when the muddineſs of the cornea, if any, is gone off, and the pupil looks clear and tranſparent, with nothing diſcoloured behind it; and when the horſe on the road proceeds with courage, chooſes his way, and leaves off ſtarting. But when the eyes look flat and depreſſed, and decay gradually, it is a ſign a cataract is forming, and that the diſeaſe will terminate in blindneſs. When there is a natural defect in the eyes, or this diſeaſe is hereditary, no remedies will reach the diſorder.

The cure is to be attempted by ſweetening the ſalt ſerum of the blood, by carrying it off by other outlets; and ſtrengthening the glands by external remedies. The humours may be diverted from the eye by bleeding, clyſters, and gentle purges, and their acrimony may be corrected by crude antimony, cinnabar of antimony, and Æthiops mineral. The eyes may be ſtrengthened by wild valerian root, fennel ſeed, roſemary and lavender flower made into balls of two or three ounces, and given the horſe every day, unleſs he has had a clyſter or a purge; as alſo by external applications.

Outward remedies, which have been moſt in vogue for the diſeaſes of the eyes, are *tutty*, *lapis calaminaris*, and *white vitriol*. But it is but lately known that they are all three the offspring of zinc, which is a ſemimetal, and looks not much unlike block-tin. Lapis calaminaris, properly ſpeaking, is the oar of zinc; tutty is the recrement of zinc, which is gained by making braſs with copper and lapis calaminaris; and white vitriol is made by diſſolving zinc in equal parts of oil of vitriol and water, evaporating the water and ſetting it to cryſtallize.

Bleeding in this diſorder is generally proper, unleſs the

the eyes ſink, and look as if they were periſhing. The eyes may be waſhed two or three times a day with the following water.

Take of white vitriol two drams; of camphire one dram; pour a pint of boiling water upon them; and when it has ſettled decant off the clear for uſe. It may be applied to the eye and the parts about it with a bit of ſponge or a fine rag.

Or mix white vitriol with freſh butter, and put a bit of the ſize of a horſe-bean into the greater corner of the eye. This with proper internal medicines will often prove ſufficient. When the veins that lie near the eye are turgid and full of blood, bathe them ſeveral times a day with vinegar or verjuice, till they are brought to their natural ſize. The horſe may be purged with the following drink.

Take lenitive electuary and cream of tartar, of each four ounces; of epſom ſalt three ounces; of ſolutive ſyrup of roſes two ounces: mix theſe with a pint of warm water gruel, and give it the horſe in a morning faſting. Some time after, his feeds ſhould be ſcalded bran, with moderate exerciſe.

To attenuate or thin the blood, and keep the horſe's body open, the following may be given once a week.

Take of Epſom ſalt an ounce; ſuccotrine aloes and gum guaiacum, of each half an ounce: make them into a ball with common treacle, and roll it in wheat flour.

On the intermediate days he ſhould have a ball made with an ounce of wild valerian root, half an ounce of cinnabar of antimony, and half an ounce of gum guaiacum, for two or three months, till his eyes look clear and well. The valerian root may be ſometimes changed for the ſame quantity of dried ſage or lavender flowers.

When the horſe's eyes are ſunk, and look as if they were going to periſh, you may try what good feeding will do, with a ſufficient quantity of oats; for when horſes have been hard worked and low fed, this will often

often ſucceed without any other means, taking care at the ſame time to let his labour be moderate. You may ſafely waſh his eyes twice a day with two parts of water and one of brandy. Salts and ſtyptic medicines muſt be forborne, for they will do more harm than good. Inſtead of the laxative ball, he may take two drams of quickſilver killed with a ſufficient quantity of turpentine, and mixt with half an ounce of fine ſuccotrine aloes, and the ſame quantity of gum guaiacum, made into a ball with common treacle. He may take it every other day, for five or ſix times, unleſs it makes him dung too much, which it ſeldom does, and then it muſt be given him at longer intervals. He ſhould be kept faſting two or three hours after it, and then have only warm water and ſcalded bran. If it has a tendency to ſalivation, which may be known by the ſoreneſs of his mouth, and this laſt may be diſcovered by his manner of eating, he muſt be fed with water-gruel for two or three days, till the ſoreneſs is gone off; but there is very little danger of this, becauſe the quick-ſilver almoſt always paſſes off by ſtool. On the intermediate days, the ball mentioned above with valerian root, &c. may be continued; as alſo after the mercurial courſe is over.

When there is occaſion to invigorate the blood, and ſtrengthen the ſolids, you may mix a quart of clear forge water with the water he is to drink, once every day. Or you may boil a pound of the ſhavings of lignum vitæ in three gallons of forge water, and allow him a quart a day as before. Or you may add a pound of old ruſty nails to the decoction of lignum vitæ in ſpring water, while it is boiling; or a pound of the groſs powder of antimony tied in a rag. The antimony in particular will be very proper when there is any breakings out in the head, neck, or other parts of the body.

Rowels may be ſerviceable for a time in drawing off the offending humour, but unleſs the blood is cleanſed by

by the above method, the diſeaſe will return when they are dried up.

I know not how a running eye, which is properly a lippitude, comes by the name of moon-blind, for this is more truly a diſpoſition to a cataract, in which the eye is never ſhut up or cloſed, or runs, but it looks thick or cloudy, and the horſe ſees little or nothing. If at the ſame time the eye ſinks, and, as it were, dries away, it is in vain to attempt a cure, ſince no internal remedies will reach the cauſe of this diſeaſe; for a cataract being an opacity of the cryſtalline humour of the eye, attended with a hardneſs when it is ripe, it is no wonder that it will not yield to remedies. It cannot be denied, but the beſt authors who have wrote upon this ſubject are very confuſed in their accounts of moon-blindneſs; but if the ſymptoms are attended to, there is no danger of making any miſtake.

Of SPOTS, FILMS, *and the* HAW *of the* EYE.

WHEN a horſe has had an ulcer or wound of the eye, there will remain a cicatrix or ſcar in the ſame manner as in other parts of the body. When it happens in the tranſparent cornea, it appears like a white ſpot, more or leſs extended, and more or leſs thick, according to the nature of the wound or ulcer. The ſpot generally looks ſmooth and ſhining, and ſometimes is eminent and unequal. In the opake cornea it ſeldom appears at all, or at moſt very little, on account of the white colour of the membrane of the conjunctive.

There are ſeveral cicatrices of the cornea, but eſpecially thoſe of the tranſparent cornea oppoſite to the pupil which diminiſh the ſight. Thoſe that are very ſuperficial hurt the ſight but little, but thoſe that lie deeper may entirely deprive the horſe of viſion. Since

theſe

theſe are altogether incurable, whatever ſome may pretend, I ſhall ſay no more about them.

There is a ſpot in the eye, that is cauſed by a humour which is congeſted between the coats of the eye: when this hardens, the ſpot is formed. Sometimes they are no bigger than a grain of millet ſeed, and when they are larger, they never ſpread farther. If they ſhould chance to ulcerate, they may be readily healed with the powder of Florentine orris and ſugar candy; or with the ſapphire coloured water of the ſhops.

The *leucoma or albugo* is a white ſuperficial ſpot on the tranſparent cornea, which hurts the ſight while it continues. It may be diſtinguiſhed from a cicatrix which is white and ſhining, by its being of a dull whiteneſs like chalk. It is likewiſe attended with a ſlight fluxion, a ſmall inflammation and pain, and happens without any precedent ulcer. It may likewiſe be known from an ulcer, becauſe in this there is a ſolution of continuity, and in an albugo there is none. When this diſorder has continued a long while, an ulcer of the cornea may be apprehended, which leaves a cloud after it is healed that will never diſappear. But while it is recent, it may be removed without leaving any trace behind it; for this reaſon we ought to cure it as ſoon as poſſible.

Some take it off with the gall of a pike or partridge, or the juice of celandine; and if theſe are too ſharp, they muſt be mixt with a little of the ſolution of gum tragacanth: or you may take a ſheet of paper, and make it up like a funnel; then ſet fire to the wide end of it, and as it burns, a ſmall quantity of oil will deſcend to the narrow part: apply a drop of this to the ſpot with a feather, firſt diluted with ſpittle. Some uſe the oil of box in the ſame manner. Half an hour after the uſe of any of theſe, the eye muſt be waſhed with water mixt with a little brandy, and the medicine muſt not be applied again till the next day.

The

The following liniment is excellent in this caſe, which muſt be applied with a ſoft feather to the ſpot.

Take half a dram of myrrh, five grains of camphire, and as much of the white vitriol: rub theſe together with two drams of honey and as much fennel water as will bring them to the conſiſtence of a ſoft liniment.

Or you may make a powder with Florentine orris, myrrh, and ſugar candy, half a dram of each; and fifteen grains of white vitriol. A little of this may be blown up the noſtrils with a quill. When the ſpot is vaniſhed, you muſt compleat the cure with the eye-water mentioned in the ſection of ſuperficial ulcers. *Films* are to be removed in the ſame manner. When the albugo is obſtinate, make uſe of the powder with glaſs, mentioned below.

The *haws* or *pterygium* is a fleſhy excreſcence, which generally begins in the greater angle of the eye, and in proceſs of time extends itſelf like a wing along the conjunctive, as far as the outward circle of the iris. Sometimes it reaches no farther than the corner of the eye in which it was bred. When it is recent and ſmall, it will ſometimes yield to remedies, particularly the following powder.

Take of cuttle-fiſh bone a ſcruple; of glaſs ten grains; of white vitriol fifteen grains; of Florentine orris half a dram; of ſugar candy a dram: reduce theſe, eſpecially the glaſs, into very fine powder. Blow ſome of this on the haw three or four times a day with a quill, and waſh the eye, half an hour each time, with water mixt with a little brandy.

The glaſs ſerves to cut and excoriate the ſurface of the haw, to give way for the fluid contained in its veſſels; and to excite at the ſame time a ſlight ſuppuration, as well as to procure a paſſage for the other remedies. Some make a powder with equal parts of ſugar candy and cryſtal. The following collirium is likewiſe good for this purpoſe.

Take of verdigreaſe a ſcruple; of Roman vitriol calcined

cined to a redneſs ſixteen grains; borax and pumice ſtone, of each twelve grains; of ſugar candy a dram: mix them with four ounces of the juice of celandine in which a little gum arabic has been diſſolved. Apply a little of this with a feather five or ſix times a day, firſt ſhaking the vial.

When a haw covers part of the eye there is a ligament runs along the verge of it that becoms horny like a griſtle, which binds or compreſſes the eye. In this caſe, and likewiſe when the diſorder will not yield to other medicines, we muſt come to manual operation; this is performed by taking hold of the membrane with a ſmall fine hook, and cutting off ſo much of the caruncle as looks moiſt or ſpungy, with part of the membrane and griſtle that makes a preſſure on the eye. This done, dreſs it with honey of roſes. But if after this the eye continues very moiſt, ſo as to be like to breed proud fleſh, it will be proper to blow in equal parts of burnt alum and double refined ſugar twice a day. In ſome caſes it may be touched with blue vitriol to keep down the fleſh.

Of BRUISES *and* WOUNDS *of the* EYE.

A Horſe is very liable to blows upon, and bruiſes of the eyes; and yet they are ſeldom ſo dangerous as might be apprehended: for ſometimes an accident of this kind will make the horney coat of the eyes turn quite white, and yet they will come to themſelves in a few days, only by bathing it with cold ſpring water, by the help of a ſpunge, four or five times a day. Or,

Take a quarter of an ounce of dried white roſes, and pour thereon a pint of boiling water; when it is cold, diſſolve in it a ſcruple of white vitriol, and the ſame quantity of the ſugar of lead for an eye-water.

When

When the eye is ſwelled or inflamed, it will be proper to bleed the horſe, and bathe it with the above eye-water. When the caſe is bad, beat a dram of rock alum with the whites of two eggs, till they turn to a kind of a curd: ſpread this upon a pledget, and bind it gently over the eye, renewing it when it is dry. Or lay conſerve of roſes on a cloth, and apply it in the ſame manner.

When the eye is naturally good, and has not been harraſſed with improper applications, it may be recovered, though the caſe is ſeemingly deſperate. For inſtance, when there is a defluxion on the eye, or the eye-lids are ſwelled and moiſt, or the eye is inflamed, or is ſo full of anguiſh that the horſe will not or cannot open it, then ſtronger applications may be made uſe of, if the alum curd will not do alone.

Take of roſe water four ounces; of honey of roſes an ounce; white vitriol and ſugar of lead, of each thirty grains: mix them for an eye-water.

Sometimes a ſpoonful or two of red port wine may be added, eſpecially if a thin humour runs from the eye. When there is any blemiſh, or ſcurf or ſcar remains upon the eye, then blow equal parts of white vitriol and double refined ſugar into it, night and morning, till the eye begins to look clear, and then the eye-water will be ſufficient alone, once a day, till the cure is completed. When there is a conſiderable fluxion on the eye, rowels will help to divert the humours, and the horſe is to be fed with ſcalded bran for two or three days, inſtead of oats.

Wounds of the *eye* are not mortal, but on the contrary may be eaſily cured: yet thoſe that are very bad, are not without danger, not only on account of the loſs of ſight, but becauſe of the troubleſome ſymptoms that may attend them; ſuch as fluxions, inflammation, pain, &c.

When wounds of the eye are not large; when they don't change the diſpoſition of the internal parts; when

when they are not ſeated on the tranſparent cornea, over againſt the pupil; and when they heal readily without ſupervening accidents, they will do no damage to the ſight, though they penetrate the cornea, and let out the watery humour.

But when they are conſiderable, and change the diſpoſition of the internal parts; when they are quite croſs the tranſparent cornea; or when they are ſmall, if they are attended with a fluxion, inflammation, or other accidents, they are almoſt always followed with loſs of ſight; and this on account of the large cicatrices that remain, or by reaſon of the ulcers, abſceſſes or great ſuppurations that ſupervene, and are often the deſtruction of this noble organ.

Wounds of the eyes that are made with ſharp inſtruments are more eaſy to cure, *cæteris paribus*, than thoſe that are made with blunt weapons. Thoſe that are made on the ſide of the globe of the eye, without hurting the muſcles of the eye, are eaſy to heal; but when the muſcles or nerves are offended, or the eye is drawn more to one ſide than the other, or there is a palſy of the eye, or an abſceſs formed therein, the conſequences are commonly bad.

In curing wounds of the eyes we ſhould be attentive to prevent fluxions, inflammations, and pain, which are the moſt common ſymptoms that attend theſe accidents. This may be done by bleeding, and repeating it occaſionally; by roweling under the jaws, the breaſt or belly, eſpecially when the eye is much ſwelled or inflamed; by clyſters, and by a laxative diet with ſcalded bran. If there be any ſtrange body left ſticking in the eye, or between the globe and the eye-lids, it muſt be taken out.

In the cure it will be proper to drop pigeons blood into the eye, or breaſt milk, or cows milk with a little ſaffron infuſed therein, which will prevent an inflammation and plain. Then dip compreſſes in roſe water and the white of an egg beaten together, renewing the dreſ-

dreſſings five or ſix times a day. Or you may mix a dram of tincture of myrrh with an ounce of honey of roſes, and dip ſoft lint therein. In this caſe, dreſſing once a day will ſuffice till it is cured.

When the cornea is only prickt by a thorn or otherwiſe, and the aqueous humour ſhould run out, it will fill again in a day or two's time, as I have ſeveral times obſerved. When there is no great inflammation a wound in the cornea will heal inſenſibly. But if the inflammation is conſiderable, it will open the wound and let the watery humour out again, which had been renewed and kept in before, and ſometimes the eye will become quite empty, and therefore we ſhould always diſtruſt this ſort of wounds. But to prevent this as much as poſſible, we ſhould dip two pieces of good flannel, of the breadth of two hands, in the following fomentation, letting them ſoak, and then wring out one, and apply it very warm, but not too hot, over the wounded eye; and when the firſt begins to cool, apply the other. Let this be done alternately for half an hour, keeping the fomentation hot enough for the purpoſe. This management may be repeated twice a day, or oftner, till the ſwelling begins to ſink, and the wound diſcharges laudable matter.

Take camomile flowers, elder flowers and red roſes, all dried, of each half an ounce; of marſh-mallow leaves an ounce; of ſal ammoniac half an ounce: pour of boiling water upon them three pints. When the infuſion is almoſt cold, ſtrain it off, and then add half a pint of red port wine. It muſt be heated again to dip the flannel in.

Of PUSTULES, ABSCESSES *and* ULCERS *of the* HORNY COAT *of the* EYE.

PUSTULES which ſometimes appear on the horny coat of the eye are of two ſorts, *phlyctenæ*,

tenæ, and puſtules properly ſo called. The former are like ſmall bliſters, the latter lie a little deeper, and are filled with purulent matter, like pimples on the face. Theſe diſorders are generally the conſequences of the inflammation of the eye, when the blood contained in the enlarged veſſels does not diſperſe, but turns acrid and corrodes the part in which it lies, with this difference, that the acrid ſerum occaſions phlyctenæ, and the red part puſtules.

As the phlyctenæ are tranſparent, they appear to be of the colour of that part of the eye in which they ariſe. When puſtules ariſe on the conjunctive coat of the eye, they are reddiſh at firſt, and afterwards white. But when they are on the tranſparent cornea, they look duſky at firſt, and in time turn white. All the danger lies in their turning to ill-conditioned ulcers; and if they do, they are very hard to heal. Phylctenæ are not ſo bad as puſtules; and they are neither of them ſo dangerous on the conjunctive as on the tranſparent cornea. When they are over-againſt the pupil they are worſt of all.

The cure of both are alike; and if they ſeem to be dangerous, you muſt begin with bleeding; keeping his body open, and make rowels as in the laſt ſection. Alſo diſſolve five or ſix grains of ſugar of lead in three ounces of roſe water, and dip a compreſs in roſe water and the white of an egg beaten together, and lay it over the eye This muſt be removed five or ſix times in a day. When they are attended with pain, ſteep as much ſaffron in new milk as will make it of a fine yellow, and mix it with an equal part of the mucilage of quinces, and drop in a little of the mixture warm. Afterwards lay a compreſs over the eye dipt in the ſame mixture, and renew it every two or three hours.

Note, this mixture muſt be freſh every day with new milk. The mucilage is made uſe of becauſe it is a little anodyne, and ſheathes the acrid particles that offend the eye, as well as it gives a body to the mixture

ture, that it may lie on longer without drying. When the puſtules ſeem to give way, mix a little brandy with fennel water, and waſh the eye two or three times a day, which will ſtrengthen the eye, and bring it to itſelf the ſooner.

When the puſtule tends to a ſuppuration, apply ſome drops of the following eye-water to it ten or twelve times a day.

Take the root of marſh-mallows, camomile flowers and melilot; of each half an ounce. Boil them a little while in roſe water and fennel water, of each ſix ounces; then add a ſcruple of ſaffron, and ſtrain off the decoction.

Likewiſe dip a compreſs in this water, and lay it over the eyes, as before directed. When the puſtules are long before they break, open them with the point of a lancet or needle, to prevent the matter from corroding the cornea, and rendering the ulcer more deep, which will be attended with a larger cicatrix.

When the puſtules break of themſelves, or have been opened, drop five or ſix drops of the following eye water into the eye ſeveral times a day.

Take of lime-water a pint; of ſal ammoniac a dram: let them ſtand in a copper veſſel till the water becomes of a fine ſky-colour, and then it is fit for uſe.

An *abſceſs of the cornea* is often a conſequence of a great inflammation of the eyes, when it does not terminate by reſolution. It ſometimes ariſes ſpontaneouſly, like other abſceſſes, from a hot, acrid ſerum, or from an extravaſation of the horny coat from external violence.

It differs from phlyctenæ and puſtules in being more deep, and the matter that forms it more thick. While this abſceſs is forming, the inflammation is violent, and the pain is great, which continue till the pus is formed. Sometimes the abſceſs is ſo ſmall as to take up no more room than a puſtule, and ſometimes it is ſo large as to take up a good part of the cornea. When the pus is collected between the pellicles of the

external ſurface of the cornea, the tumour will point outward, like a nail; when in the middle, it is flat and depreſſed; and when more inwardly, there is no tumour on the outſide.

The abſceſs of the cornea is a very troubleſome diſeaſe, becauſe it is often attended with loſs of ſight, either on account of the deep cicatrix it leaves behind it, or from the ulcer it may happen to turn to, which is always very malignant. Beſides, the horny coat is ſometimes eaten through, and then the watery humour will run out, which is often attended with a diſplacing of the reſt of the humours; or, laſtly, the whole may ſuppurate, or, at leaſt, a part of it, when the abſceſs breaks into the eye.

The ſmaller the abſceſs is, the leſs is the malignity, and may be ſooneſt healed. Thoſe which are on the outſide of this coat are not ſo bad as thoſe which lie in the middle of it; and thoſe are ſtill worſe which are formed near the internal ſurface. Thoſe likewiſe which are formed in the opake cornea are not ſo bad as thoſe in the tranſparent cornea; and the nearer they are to the middle of the pupil, the more dangerous are the conſequences.

In the cure of this abſceſs, we muſt make uſe of medicines as well general as particular. The general are bleeding, roweling, clyſters, and laxatives, as before directed. When the inflammation begins to abate, and the matter that is collected does not appear to be of a bad quality, you may attempt to diſperſe it by a decoction of the flowers of camomile and melilot, and the ſeeds of fennel, in equal quantities, in roſe water: to which add ſaffron enough to colour it, and ſome drops of the tincture of myrrh. The eye may be waſhed with this, and compreſſes laid over it as uſual.

When this or the like medicines do not diſcuſs the humour, we muſt have recourſe to the laſt remedy, which is to open the abſceſs with the point of a lancet to let out the pus, without waiting till it breaks of itſelf.

ſelf. The lancet muſt be applied to the moſt prominent part of the abſceſs, and penetrate ſo deep as to reach the matter that is formed, taking care, as the lancet is withdrawing, to make the aperture as wide as the ſemidiameter of the abſceſs.

Immediately after the opening you may apply new milk tinctured with ſaffron, or any other anodyne application, to eaſe the pain; and then the eye-water with lime-water and ſal-ammoniac deſcribed above.

Ulcers of the *conjunctive* and *tranſparent cornea* are common diſorders, being the conſequence of inflammations, puſtules, abſceſſes and wounds; as alſo of the fluxions of ſharp corroſive humours, which proceeding from the glands of the eyes, by continuing therein, cauſe a ſolution of the continuity.

Ulcers are either ſuperficial or profound. The ſuperficial are uſually cauſed by ſharp corroſive humours, which eat into the eye; or by phlyctenæ, or by ſlight hurts of the eye. There are four kinds of theſe ulcers, which only differ in degree. The firſt is a ſlight ulcer which appears like a kind of miſt upon the tranſparent cornea, and which occupies the greater part of it: this is nothing but the beginning of an ulcer, and is ſeated in the ſurface thereof, which ſome have called, but improperly, the cuticle. When this is healed in time, it leaves no cicatrix behind it.

The ſecond is an ulcer like the former; but is ſomewhat more deep and more white, and generally takes up leſs room. When it is cured, it leaves a ſlight cicatrix behind it, which a little incommodes the ſight when it lies over the pupil.

The third is a round ulcer and deeper than the former, and ſucceeds the opening of puſtules, looking white when in the tranſparent cornea, and appears reddiſh when on the conjunctive: when this is ſeated on the pupil it obſcures the ſight after it is healed.

The fourth is a corroding painful ulcer, rough and unequal, of an aſh colour, appearing like a lock of

wool, when ſeated on the tranſparent cornea. This is the worſt of the ſuperficial ulcers, becauſe it is apt to degenerate into one that is deep and ſordid. When healed it leaves a thicker cicatrix behind it than the former.

Deep ulcers are either cauſed by the opening of an abſceſs, or from other cauſes. They are divided into three kinds: the firſt is deep, narrow, and hard, and when it is ſeated on the tranſparent cornea, it does not change the colour, nor grow white after the cicatrization of the ulcer. When it affects the conjunctive, it is red on the edges, and blackiſh in the middle. The ſecond is like the former, but larger. The third is a ſordid ulcer, and the matter that runs from it is thick and of a bad quality.

It muſt be owned, the diſtinction of theſe ulcers is not very material; for the nature of them will readily appear upon inſpection, as well as their differences; their names being of little ſignification.

The prognoſtics of ulcers may be drawn from the difficulty there is in healing them; from the pain and inflammation that attends them; from the nature of the ulcerated parts, and the ſymptoms that accompany them, ſuch as the rupture of the cornea, the fungous fleſh, the fiſtula, and the nature of the cicatrices. In particular, ulcers that occupy the conjunctive are not ſo dangerous as thoſe that appear on the tranſparent cornea, much leſs on the pupil. Superficial ulcers are eaſieſt to heal, and deep ulcers are attended with the moſt dangerous conſequences. When a thin, corroſive matter flows from an ulcer, which corrodes the adjacent parts, they are cleanſed with great difficulty, and threaten the deſtruction of the whole eye.

In curing an ulcer when it is ſuperficial, uſe the following eye-water.

Take three ounces of roſe water, and diſſolve in it ten grains of gum arabic. Then add five grains of white vitriol,

vitriol, and the ſame quantity of ſugar of lead, and twenty grains of ſugar candy. Make them warm, that they may diſſolve the ſooner.

Apply a few drops to the grieved part ten or twelve times a day, and lay a compreſs over the eye, dipt in a mixture of roſe water and the white of an egg beaten together. Or, inſtead of this, you may make it with the ſame quantity of roſe water, ten grains of camphire, and the ſame quantity of white vitriol, with a ſcruple of ſugar candy. The camphire muſt be rubbed with the ſugar candy, and the water poured thereon by little and little. But it will diſſolve more intimately if it be ground with a third part of a blanched almond firſt, and then add the ſugar candy.

The camphire, by the ſubtilty of its parts, makes its way into the coats of the eye, and attenuates the groſs matter; and by its balſamic qualities corrects the malignity of the humours. When the ulcer is not cleanſed by theſe means, the eye-water may be made ſtronger, by encreaſing the quantity of the dry ingredients. But in all theſe caſes the effects of the remedies muſt be duly attended to; for inſtance, when an ulcer of the eye dries up and grows hot, inſtead of being cleanſed, we may conclude the remedy is too ſtrong, and then it muſt be rendered weaker by increaſing the quantity of water. On the other hand, when an ulcer is too moiſt, and grows foul, we may judge the collyrium is too weak, and then the water muſt be decreaſed. But when the ſuppuration is laudable, the ulcer grows cleaner, and the inflammation abates, the ſame medicines may be continued till another indication ariſes.

When the ulcer is deep, without any great degree of malignity, which is known by its white colour and evenneſs, by the matter not being acrid, and by the ſlightneſs of the inflammation, the following collyrium may be uſed.

Take four ounces of roſe water and fennel water, and diſſolve fifteen grains of gum tragacanth therein: then add aloes of myrrh, of each a ſcruple; camphire and white vitriol, of each eight grains; a ſcruple of prepared tutty, and half a dram of ſugar candy: diſſolve them as much as may be in the above water, and then ſtrain them through a fine rag.

When there are ſigns of malignity, or when the edges of the ulcer appear callous, and the bottom diſcoloured, with a hot, ſharp defluxion, and an inflammation, it muſt be corrected by collyriums of a ſtronger nature; thus,

Take roſe water and fennel water, of each two ounces, prepared tutty, ſugar of lead, crocus of antimony waſhed and prepared, and myrrh, of each a ſcruple; of ſugar candy half a dram; of gum tragacanth fifteen grains; of ſaffron ſix grains. Firſt diſſolve the gum tragacanth in the water, and then add the reſt, taking care that thoſe ingredients which will not diſſolve may be in very fine powder. The crocus may be had at the ſhops ready waſhed.

This may be uſed as the other eye-water; but in the intermediate times of application, it will be proper to uſe the anodyne collyrium, with cows milk tinctured with ſaffron, mixt with mucilage of quince ſeeds, to eaſe the pain, and to ſoften the ulcer.

When a blackiſh thick matter diſtils from the ulcer, it is then malignant, and the rupture of the cornea is to be apprehended, and therefore we muſt endeavour to prevent it as ſoon as we can.

Take of roſe water four ounces; of verdigreaſe fifteen grains; of camphire ten grains; of myrrh a ſcruple; of ſugar candy half a dram. Firſt diſſolve ten grains of ſugar candy in the water, and then mix them well together in a marble mortar, pouring on the water by little and little at a time. Diſtilled verdigreaſe will be beſt, becauſe it is free from impurities.

Or

Or inſtead of this, you may mix fifteen grains of blue vitriol, commonly called the *blue ſtone*; a ſcruple of myrrh, and a dram of the honey of roſes, with the ſame waters. Theſe need only be applied three times a day, making uſe of anodyne collyriums in the intermediate times As ſoon as the matter begins to be white, all of a colour, and thick, while the other ſymptoms diſappear, then we may uſe the others before mentioned to heal it and dry it up. Or it may be done by the following powder, a few grains of which is to be blown into the eye upon the ulcer with a quill.

Take of white vitriol fifteen grains; of alces a ſcruple; of ſugar of lead ten grains; of tutty prepared half a dram; of Florentine orris as much; of ſugar candy a dram; reduce all theſe into a very fine powder for uſe. It is to be applied three or four times a day, uſing anodynes between whiles to allay the pain.

The following is a very good collyrium, and is uſeful in moſt ulcers of the eyes.

Take two drams of myrrh; a ſcruple of white vitriol; ten grains of camphire; and half an ounce of ſugar candy: boil ſome eggs hard, cut them in two, take out the yolk, and fill them with this mixture made in the ſame proportion. Tie them together, and ſet them upright on a hurdle over an earthen pan to receive the liquor that drops from them, which put in a bottle for uſe.

This is a general remedy for ulcers in the eyes, and ſo is the following, which has been uſed with very great ſucceſs.

Take of butter as it comes from the churn unwaſhed, four ounces; of tutty prepared an ounce; camphire, ſugar of lead and red coral prepared, of each half a dram; of verdigreaſe twelve grains; of pompholigos two drams: mix them well together, and put five grains in the great corner of the horſe's eye, when he is moſt at reſt.

In common diſeaſes of the eye, particularly inflammations, the following is an excellent water.

Take

Take elder flower water and French brandy of each three ounces; of camphire ten grains; of ſugar of lead half a dram: firſt diſſolve the camphire in the brandy, and the ſugar of lead in the water, and then ſhake them together in a bottle. At the time of uſe you may warm this mixture, and then dip a linen cloth in it three times doubled, to lay over the eye.

Note arquebuſade is much preferable to plain brandy where it can be had, as it may in ſeveral places in and about London. It muſt be renewed ſeveral times a day.

When the ulcers are entirely healed and cicatrized, if the eye continues weak afterwards, it muſt be ſtrengthened with ſome proper eye water. If there are cicatrices that hurt the ſight, by being over or near the pupil, the remedy communicated by Sir *Hans Sloan* is moſt proper for the removal of them; becauſe it has cured many eyes that were covered with opake films and cicatrices, left by inflammations and apoſtems of the tranſparent cornea; I mean human eyes; and there is no reaſon to doubt but it will have the ſame effect upon the eyes of a horſe, when uſed with care and judgment.

Take of prepared tutty an ounce; of the ſtone called hematites *prepared two ſcruples; of ſuccotrine aloes twelve grains; of prepared pearls four grains: rub them together in a marble mortar, with a ſufficient quantity of vipers fat to make them into a liniment.*

This remedy is to be applied with a hair pencil once a day, without any thing elſe, if to take off ſcars or cicatrices, or if the eyes are only weak and ſore; but in more grievous caſes, generals muſt be premiſed, as bleeding, laxatives, clyſters, and roweling.

Of COLDS *and* COUGHS.

IN order to the explanation of a cold, it is neceſſary to know, that as the bodies of all animals conſiſt of a vaſt number of pipes and veſſels, through which the blood and humours are conſtantly circulating; it is no wonder that a great number of exceeding fine particles ſhould be continually flying off, ſometimes like a vapour, and ſometimes like a fluid. This is called perſpiration, and is greater than all the other ſecretions put together. It is cauſed by the conſtant dilatation and contraction of the veſſels called arteries, by which means the blood is conſtantly thruſt towards the excretory pores of the ſkin. Beſides, there is an internal heat which is endowed with a rarifying virtue, and expands the fluids, opens the pores, and reſolves moiſture into exceeding fine vapours. Therefore, the greater the force is by which the fluids are impelled to the ſurface of the body, the greater will the perſpiration be, unleſs the pores are ſhut up: and conſequently whatever promotes and quickens the circulation of the blood, muſt needs increaſe perſpiration. Hence it is plain, that as labour and exerciſe increaſe the pulſe, they muſt of courſe increaſe heat and perſpiration. We may obſerve likewiſe, that there is no promoting ſweat without increaſing the motion of the heart. Therefore, as the motion of the fibres and the courſe of the fluids is always more quick and lively in a pure ſerene air, we may conclude that perſpiration is always in that caſe more free.

Sometimes there may be a great internal heat, with a dryneſs of the ſkin at the ſame time, as in fevers, which ariſe from a ſtricture of the pores of the ſkin, and then perſpiration cannot be performed: likewiſe when the air is moderately hot and moiſt, the fine veſſels under the ſkin are dilated, and the ſkin itſelf is rendered moiſt and turgid, which tends to conſume the ſuperfluous and excrementitious humours. The

former

former exhauſts the ſtrength, and has a fatal tendency; whereas the latter preſerves the vital fluids in their proper temperature.

Daily experience teaches us, that we perſpire and ſweat a great deal more in hot weather than in cold; therefore in the ſummer months all animals are more apt to ſweat, that ever ſweat at all. And as a free perſpiration carries off many diſeaſes; ſo when it is impeded, many diſorders will be induced, which are of dangerous conſequence, becauſe a redundancy of impure juices will be generated thereby, which are diſpoſed to corruption and putrefaction; particularly colds, running at the noſe, coughs, rheumatiſms, &c.

This redundancy of humours is more apt to affect the lungs and head than any other parts, becauſe when a horſe has been heated and ſuffered to cool ſuddenly, the acrid ſerum and perſpirable matter drove back from the ſkin, falls upon the windpipe and lungs, and ſo occaſions coughing. Therefore there is nothing more likely to produce a cold than to bring a horſe out of a hot ſtable into the cold air; becauſe it immediately ſtops perſpiration, and drives the ſharp excrementitious matter to the inward parts, eſpecially to the glandulous coats of the throat, mouth, noſtrils, and bronchia of the lungs, producing a cough, running at the noſe, defluxions, catarrha, inflammatory, and other fevers. The ſame will happen from riding them till they are hot, and letting them ſtand in the cold air; or from leading them through deep ponds while they are hot; or by putting them in cold damp ſtables; or by not rubbing them well, and wiping off the ſweat carefully when they come off a journey, for if the ſweat be ſuffered to dry on, it will obſtruct the pores of the ſkin and hinder perſpiration. Sometimes epidemical colds appear in the ſpring, from the vapour that the heat of the ſun draws from the earth: likewiſe in autumn and winter, when after a warm ſouth

wind

wind a cold north wind ſucceeds, and produces the effects above-mentioned.

The firſt ſymptoms of a cold are a coughing, heavineſs and dulneſs, which is more or leſs perceivable according to its degree. When this happens, it will be beſt to feel between the jaws and behind the ears, to know whether he has any ſwelling in thoſe parts, for theſe are ſigns of this diſorder. Sometimes the eyes will be moiſt and watery: and when it is very violent, he will be feveriſh, and fall off his appetite, with a working at his flanks.

With regard to the prognoſtics; when the cough is ſtrong, and the horſe does not refuſe ſcalded bran nor warm water, at the ſame time pricking up his ears and moving briſkly in his ſtall, it is a good ſign; as alſo when he dungs and ſtales freely without pain: it is likewiſe a good ſign when his ſkin feels as it did when he was in health, and when his mouth is moiſt without being clammy. But when his coat ſtares, it is a bad omen; when his mouth is hot, dry, and parched, and his belly tuck'd up, there is danger of a fever: when a horſe feels hotter than ordinary, with a working at his flanks; when he will not eat his meat, and refuſes water; when his eyes are very moiſt, his mouth ſlimy, his ears and feet cold, there is danger of a malignant fever.

Young horſes are more ſubject to colds than thoſe that are full aged; eſpecially when they are breeding their teeth, they ſometimes have a cough and a ſlight fever, particularly before they cut their tuſhes. Some young horſes are troubled with a cough in the beginning of the ſummer from worms and bots.

If a horſe has got a cold with a ſnorting, and his appetite is pretty good and attended only with a ſlight cough, you need only bleed him moderately, keep him warm and exerciſe him, and diet with bran maſhes (in which flouer of brimſtone may be mixed,) and plenty of warm water, and adminiſter the following drink

drink every night, viz. *Take of Spaniſh liquorice, honey, and freſh anniſeeds bruiſed, each two ounces, and one dram of ſaffron; pour there on a pint and an half of boiling water ſoftened with bran, when cold ſtrain off the liquor.*

If the ſaffron is thought too expenſive, it may be omitted, and the quantity of liquorice increaſed. If the cold does not ſubmit to this treatment in about eight or nine days, I would then recommend a little more blood to be taken away, and inſtead of the foregoing infuſion, take of nitre finely purified two ounces, mix it into a ball with a ſufficient quantity of honey, and give it twice or thrice a day, with a horn or two of water gruel or hyſſop tea. But as many horſes take the nitre ball with great reluctance, I would in that caſe ſubſtitute a nitre ſolution, made in the following manner: *A pint of ſtrong infuſion of Spaniſh liquorice, or common water gruel with honey and nitre, each two ounces and the juice of one or two lemons.*

This may be given twice or thrice a day and the quantity of nitre increaſed or diminiſhed, as it is found to agree with the horſe's ſtomach, which it always will if given in a larger quantity of the infuſion, and well diluted with plenty of water.

When there is a great defluxion on the lungs, it will be proper to divert the humours by keeping the body open with clyſters and laxative purges, obſerving the ſame precautions as have been taken notice of before.

For this purpoſe four ounces of cream of tartar and as much of the purging ſalts, with two ounces of lenitive electuary, may be given, which will be of great ſervice to keep the body cool, to prevent coſtiveneſs and abate the fever.

To this mode of treatment, all colds, if taken in the firſt attack, will generally ſubmit, and I flatter myſelf that it will prove a more certain and uſeful remedy than the cuſtomary cordial drenches, which ſhould be baniſhed the ſtable, as they are more diſpoſed to augment than leſſen the fever, while the above cools the whole

whole frame and prevents all obſtructions, by promoting the ſecretions in general, but more particularly by urine, and carries off the complaint before it can poſſibly ſettle on the lungs.

But as many will prefer the old practice of farriery to the modern improvements, and as I would willingly oblige all my readers, I have, for that purpoſe, continued the following, the ſame as in my former edition, and would recommend it to thoſe who would have a drink immediately, that may be made without much trouble, diſſolve a cordial horſe-ball, which you are always to keep by you ready made, in a pint of warm ale or beer; and it will prove of great ſervice, as it conſiſts of balſamic and pectoral ingredients. You will readily find theſe balls by conſulting the index.

If you ſhould chance to be in a place where you cannot have all, or but few of the things before directed, then take three ounces of anniſeeds and a dram of ſaffron, pour a pint of boiling water over them, and let it ſtand till it is of a proper heat to give the horſe: it ſhould be ſweetened with two ounces of honey mixt with a glaſs of ſallad oil. This, though a plain and ſimple medicine, may poſſibly have as good an effect as the more compound; for anniſeeds ſeem to have ſome ſpecific virtue in curing the diſorders of horſes.

Markham's cordial ball has been long in high eſteem among farriers for a cold and cough; that which follows is taken from *Markham*'s own book, and is ſomewhat different from what I gave before, but not quite ſo good.

Take anniſeeds cummin ſeeds, fenugreek ſeeds, carthamus ſeeds, elecampane roots, flour of brimſtone, and brown ſugar candy, of each two ounces, beaten and ſearced very fine; then take an ounce of the juice of liquorice, and diſſolve it in half a pint of white wine; then take three ounces of the ſyrup of colts-foot; ſallad oil and honey of each half a pint: mix theſe with the former, and

make

make them into a paſte with a ſufficient quantity of wheat flour.

The receipt that I gave before was from Sir *William Hope*'s horſemanſhip; in which two ounces of the colts-foot was ordered in ſubſtance, inſtead of the ſyrup; and an ounce of the oil of anniſeeds was added; both which alterations make it a much better medicine than the other.

There is another amendment of the balls in *Quincy*'s diſpenſatory, under the title of *paſta hippiatrica*, the meaning of which is the horſe healing paſte. From whence he had it I cannot tell; for it is evidently not his own from the choice of the ingredients. He mentions one ball that Dr. *Ratcliff* was the author of: I wiſh he had given it us inſtead of the following.

Take powder of fenugreek ſeeds, anniſeeds, cummin ſeeds, carthamus ſeeds, elecampane root, colts-foot leaves, flouer of brimſtone, of each three ounces; juice of liquorice an ounce; oil of olives and honey, of each eight ounces; of Genoa treacle twelve ounces; of oil of anniſeed an ounce; of wheat meal a pound and a half, or as much as is ſufficient to make it into a paſte, which roll into balls.

The reaſon why I think this is not *Quincy*'s own, is becauſe he orders carthamus ſeeds, which are now and were then, out of uſe. Beſides, he has ordered twelve ounces of Genoa treacle, which is no where explained in all his diſpenſatory. Now whether Genoa treacle is a cant name for common treacle, or whether it means *theriaco andromachi*, which we call Veni a treacle, and made at Genoa, I muſt confeſs I am at a loſs to know. There may be ſome wholeſale dealers in London that may be able to tell what it means, but I have not had the luck to meet with any of them. However *Gibſon* ſeems to have been acquainted with the compoſition; for he ſays "When they are faithfully made, they are of general uſe in diſtempers of "the ſtomach, lungs, liver, and viſcera, as well as

"in

" in colds; and will ſerve to mix with other medi-
" cines upon many occaſions. They will cure recent
" colds, without any other remedy. And if half an
" ounce of Æthiops mineral be worked into a ball
" with treacle, and repeated every morning with warm
" water and maſhes of bran or malt, they will cure
" horſes troubled with worms, attended with a cough."
See Worms

And now we are upon the ſubject of cordial balls, it will not be improper to give you Dr. *Bracken*'s, and then you will be better able to judge of the merit of the reſt.

Take anniſeeds and carraway ſeeds finely powdered, of each an ounce; of greater cardamom ſeed half an ounce, of Spaniſh juice diſſolved in hyſſop water two ounces, liquorice powder an ounce and a half, of wheat flour enough to make them into a ſtiff paſte. When the whole has been beaten in a mortar, keep it for uſe in a bladder tied.

With this ball he compounds the following medicine for colds.

Take half a pound of my cordial ball, two ounces of hoglice freſh gathered, of precipitated ſulphur one ounce, of compound powder of tragacanth half an ounce, of balſam of Tolu in fine powder an ounce, of Chio turpentine half an ounce, of ſyrup of balſam ſufficient to make the whole into a proper conſiſtence for balls.

I have made no other alteration in this preſcription, than by giving the names of two of the medicines as they now go by, ſince the alteration of the London diſpenſatory: and I ſhall only obſerve, that it will be a hard matter to get good balſam of Tolu that will powder, and therefore it muſt be firſt mixed with the turpentine to render it more fluid, and then beaten together with the reſt.

" This ball," ſays he, " cannot be outdone by any
" medicine in the whole materia medica; I mean for
" curing colds in horſes. Half an ounce ſhould be
" given at a time, before the horſe has his water,

" morning and evening; and he ſhould have a ſling-
" ing canter afterwards for about a quarter of a mile,
" and then walking exerciſe. While his indiſpoſi-
" tion laſts, his water ſhould not be cold, but rather
" what we call white water."

The medicines made uſe for a cold ſhould be given as long as the cold continues; for ſometimes it will be a fortnight before it breaks, and as much longer before it goes quite off. During the cure, the horſe ſhould be kept warm and covered, eſpecially about his neck and head, becauſe they are generally moſt affected. When a horſe is ſuddenly ſeized with a violent cold which depreſſes his ſpirits, the riding and exerciſe ſhould be forborne till he has been bled, and proper evacuations have been uſed. When the cold is obſtinate, and the horſe full of fleſh, he muſt be rowelled, and then exerciſe will help the working of the rowels, and promote the running at the noſe, when the diſorder diſcharges itſelf that way.

When horſes have a cough at the time of cutting their teeth, it is generally pretty ſtrong, and continues till all the teeth are grown. This cough is entirely ſymptomatical, and ariſes from the conſent of parts; therefore the chief thing to be done is bleeding, to alleviate the ſymptoms. Sometimes a ſwelling in the roof of the mouth will ſupervene, called the lampaſs. When this riſes higher than the teeth, the horſe will mangle his hay and ſlabber. This diſorder ſhould be left to itſelf, without attempting a cure; for whatever repels the humour will endanger the eyes: much leſs muſt the running be ſtopt, which will begin as ſoon as the ſoreneſs of the gums goes off, and will continue four or five days, or a week, before it ceaſes. When any diſorders of the eyes attend the cutting of teeth, they muſt be treated as directed in the ſection of diſorders of the eyes.

Of

Of FEVERS *in general.*

A *Fever* is a general diſeaſe, which affects all the nervous parts, and diſturbs all the functions of the body; nor are the ſolids free from its dire effects: the motion of the heart and arteries ceaſe to be regular and equal; the circulation of the blood to be free and natural; and ſecretions and excretions are no longer rightly performed. Horſes may be attacked with this diſtemper at all ages, whether running at large in the fields, or kept cloſe in the ſtable; and ſometimes it is epidemical, ſeizing great numbers at the ſame time: ſometimes it is ſymptomatical, as being the conſequence of other diſeaſes, at the ſame time rendering them more dangerous, and much more difficult to be cured.

The formal cauſe of a fever is an univerſal affection of the fibrous and nervous ſyſtem, which begins at the ſpinal marrow, and is ſucceſſively propagated from the external to the internal parts of the body. The material cauſe may be any ſubtle, acrid, cauſtic matter, either generated in the body, or received by contagion; a ſtoppage of perſpiration; a reſtraining of critical ſweats; breaking out of the ſkin driven inwards; the healing of old purulent ulcers; an incongruous diet; corrupted bile lying in the firſt paſſages; want of due reſt; violent tenſions of the nervous parts; inflammations, tumours, abſceſſes, wounds, draſtic purges; ſudden cold after violent heat. Theſe cauſes will produce a great variety of fevers in horſes as well as men; but becauſe in the former we can only diſcover the general ſymptoms, they cannot be reduced to the ſame claſſes as in the latter.

A fever, properly ſpeaking, does not conſiſt merely in an accelerated pulſe, or a more frequent beating of the heart; becauſe this may happen from hard riding, or any thing elſe that puts the blood and ſpirits into a commotion. That only can be called a fever which proceeds from internal cauſes, and is attended with coldneſs of the external parts. In men there is generally a ſhivering, and ſo there is probably in horſes, though it is ſeldom or never taken notice of, becauſe it can hardly be diſcovered till the diſeaſe is confirmed.

A fever has two motions; the one from the circumference to the center, or from the external parts to the internals, the heart and lungs: on the contrary, the other is from the centre to the circumference. The firſt is attended with low ſymptoms, and the ſecond with thoſe that are violent. When a horſe dies of a fever, it is always in its low ſtate, becauſe when the blood is driven inwardly by the ſpaſms of the external parts, the heart, lungs, and brain are oppreſſed by its quantity, and not being able to return it back, they are greatly debilitated thereby. But the other motion, by which the blood is ſent from the internal parts to the circumference through the ſmall veſſels, is ſalutary and vital; for then the matter which cauſes the fever is in time corrected, diſcuſſed, and thrown out of the body, ſo that at length the fever ceaſes.

Therefore ſince nature alone is often ſufficient to throw off a fever, we muſt take care not to diſturb her ſalutary aſſiſtance when the diſeaſe tends to ſolution: for then no medicines ſhould be given but ſuch as are proper to aſſiſt the efforts of nature, in correcting, reſolving, and at length expelling the morbific matter. This is beſt done by diluents, humectants, temperants, aperients, ſtrengtheners, and nitrous medicines.

Of a SIMPLE FEVER.

A Simple fever is an accelerated motion of the blood, attended with other ſymptoms of a fever, while all the internal parts continue ſound, and there is no inflammation or inflammatory tumour that may occaſion it.

This is the mildeſt and leaſt dangerous of all fevers, and is generally owing to a ſuppreſſed perſpiration which increaſes the quantity of humours, and thereby requires an increaſed effort of nature to throw them off, and to remove the obſtructions; whence a feveriſh habit will follow, which if taken in time, by aſſiſting the endeavours of nature, it may go off without any bad conſequences. There is nothing ſo likely to cauſe this fever as a ſudden refrigeration of the body after it has been violently heated. The matter that ſhould be carried off by perſpiration is a recrement, and therefore when retained in the veſſels, it cannot be friendly to the blood, but raiſe commotions therein, and that more or leſs as the horſe is otherwiſe in health. This being the caſe, I was not a little ſurpriſed to find an increaſed perſpiration to be aſſigned as a ſymptom of a ſimple fever by Mr. *Gibſon*, eſpecially as he is in general a very judicious writer.

The ſymptoms of a ſimple fever are, a loſs of appetite, in ſuch a manner, that the horſe only nibbles his hay as if he did not like it, and he is ſo reſtleſs as to be continually ranging from one end of the rack to the other: he has a beating of his flanks, a redneſs of his eyes, and dryneſs of his tongue, which is ſomewhat parched; and his ears and feet are not cold, as in complicated fevers, but are almoſt as warm as the reſt of his body: he is not coſtive, but his dung by internal

heat is dried into ſmall balls, and is ſeldom or never greaſy: his urine is of a high colour, and is ſometimes voided with difficulty: he ſeems to be fond of water, yet drinks but a little at a time, and often.

In the cure of this fever which ariſes from too great a quantity and too rapid a motion of the blood, bleeding is certainly the firſt intention; and the longer it is neglected, the more viſcid and acrimonous is the blood rendered, by diſſipating its more thin part, condenſing the globules, and heating the ſerum to ſuch a degree as to turn it into a kind of jelly. The acrimony of the oleous and ſaline parts of the blood will be increaſed more and more, inſomuch that the blood will be at length highly contaminated, and ſo far depraved as to be unfit for the vital purpoſes.

The quantity of blood to be taken away muſt be in proportion to the ſtrength of the horſe, the intenſeneſs of the fever, the heat and the violence of the ſymptoms. Generally three pints or two quarts may be ſufficient; and if the ſymptoms are not abated by the firſt bleeding, it ſhews a neceſſity of repeating the operation, eſpecially if he refuſes to feed. However, it is ſafer to take away too little than too much.

When the horſe is diſpoſed to drink, it will be always proper to let him have a ſufficient quantity to keep his blood well diluted; otherwiſe as the preternatural heat diſſipates the thinner part, without a ſufficient quantity of fluid, the ſerum of the blood will be concreted into a gelly. This ſhould be made with warm milk and water mixt with a little oatmeal. He may likewiſe have the following drink or drench.

Take camomile flowers, elder flowers, hyſſop and liquorice root, of each half an ounce; of ſaltpetre two ounces: pour two quarts of water on theſe ingredients, to make an infuſion like tea. It may be ſweetened with ſugar or treacle, or honey, and make it a little tart with a ſpoonful or two of white wine vinegar, which will tend to allay the

the heat. The horſe may have three hornfuls of this drink four times a day warm.

His diet ſhould be ſcalded bran to keep his body open, and he may be allowed half a quartern three or four times a day, if he will eat it. But if he refuſes it, let him have raw bran ſprinkled with water. He ſhould never have much hay given him at a time, for that may cauſe him to loath it; but now and then a handful of choice hay may tempt him to eat. Sometimes a horſe will take a little hay out of the hand, when he does not care to lift his head up to the rack, eſpecially if he has been uſed to be fed that way.

Beſides bleeding and the nitrous cooling drink, it will be proper to inject cooling, emollient, and laxative clyſters, even at the very beginning, to bring away the hardened dung which is frequently pent up in the inteſtines, and to diſcharge any bilious, acrid matter which might enter into the blood through the lacteals. Beſides, they are a kind of relaxing fomentation to the bowels, and promote the excretion of urine.

Take mallows, marſh-mallows, both dried, camomile flowers, bay berries, and ſweet fennel ſeeds, of each an ounce; boil them in a ſufficient quantity of water to three pints, and then add four ounces of Epſom ſalt, a pint of linſeed oil, and half a pound of treacle: mix them for a clyſter.

Likewiſe laxative purges are very uſeful to cleanſe the guts from the filth that lurks therein. But in this caſe purges with aloes muſt be omitted, as being too hot, inſtead thereof, if four ounces of Epſom ſalt is diſſolved in a ſufficient quantity of water, and mixt with four ounces of the ſolutive ſyrup of roſes, and given as a drench, nothing can be more ſafe or cooling; nor can there be any objection againſt it, becauſe it is ſimple, for generally, the ſimpleſt medicines are the beſt. And if theſe directions are carefully followed and obſerved, you need not fear the ſpeedy cure of any fevers of this ſort.

The ſigns of recovery are the horſe's eating ſcalded bran, and picking a little hay, which when he does, you will have nothing to do but to take care of him, and let him be well nurſed, and then you will have no need of troubling him with any more medicines. For though a horſe continues to heave at the flanks, this is no bad ſign, eſpecially if you find him cool all over with a return of his appetite. He ſhould now be taken into the air every day, and be led about in the hand. He ſhould likewiſe be allowed plenty of clean ſtraw to lie down on, and then all your care is at an end.

Of INFLAMMATORY FEVERS.

BY inflammatory fevers in this place I do not mean ſuch as proceed from an inflammation of any particular part, or that keep equal pace with the inflammation itſelf, but ſuch fevers as are apt to terminate in an inflammation of ſome particular part. This is an acute continual fever, which produces a congeſtion of the blood, in the nervoſo-membranous parts; and unleſs it is removed in time, by the benefit of nature and art, will bring on a fatal inflammation.

This diſeaſe chiefly attacks horſes that are young and full of blood, at any time of the year, but principally in the ſpring and ſummer. It only differs from the former by the violence of the ſymptoms, and a greater degree of heat. When i s progreſs is not ſtopt, it often ſeizes the head, or ſome of the noble viſcera, as has appeared by opening of the horſes after death.

The indications of cure, are to free the vital parts from the congeſted blood; to abate the heat of the blood and humours, to allay the inordinate motion of the ſolids; to diſcuſs the ſtagnating and corrupted humours,

mours, and procure a free circulation, by recalling the blood to the external parts.

Therefore we muſt begin the cure, by taking away a ſufficient quantity of blood. The impetuous orgaſm of the blood and juices muſt be allayed by diluting, cooling and nitrous liquors; therefore the drink in the former ſection will be very proper, made ſufficiently acid with good white wine vinegar. Or, in the country, where a ſufficient quantity of whey can be had, he may have whey made acid with ſyrup of lemon juice, or with the juice of a lemon, and ſweetened with a little ſugar: or, inſtead of theſe, he may have the following infuſion;

Take the leaves of male ſpeedwel, carduus benedictus, ſweet fennel ſeeds, water Germander, and ſaltpetre, of each two ounces; pour two quarts of water on theſe ingredients, and when the infuſion is cold, ſtrain off the liquor; then make it agreeably acid with vinegar, and ſweeten it with ſugar, honey, or treacle; make this warm when you give it the horſe. He may have three hornfuls four times a day

The horſe's body ſhould be kept open with emollient clyſters, for there is nothing worſe than coſtiveneſs in all diſtempers of this kind. On all other accounts, he may be treated in the ſame manner as in the former ſection.

Take the dried leaves of mallows and marſh-mallows; of each two ounces; camomile flowers and ſweet fennel ſeeds, of each an ounce; of water five pints; boil them to the conſumption of a pint; then ſtrain off the liquor, and diſſolve in it half an ounce of ſaltpetre, and a handful of common ſalt. This done, pour in a pint of linſeed oil, and mix them for a clyſter, to be injected warm.

Of the PLEURISY *and* INFLAMMATIONS *of the* LUNGS.

A Pleuriſy and peripneumony are inflammatory fevers which ariſe from the ſtagnation of the blood in the bronchia of the lungs, or in the branches of the *vena ſine pari* in the *pleura*. They are attended with a ſharp pain in the ſide, difficult breathing, immoderate heat, a ſtrong quick beating of the heart, and a cough. The pleuriſy generally ſeizes one ſide only; but the peripneumony or inflammation of the lungs, generally ſeizes both ſides of the lungs at once.

The cauſe may be any thing that impedes the free circulation of the blood through theſe parts, either by plenty of thick humours, or by thin acrid humours, which irritate the veſſels to a ſpaſtic conſtriction, and ſo hinder the free paſſage of the blood; eſpecially when the antecedent cauſes conſpire to produce the ſame effect. Therefore it may be owing to bad or high feeding, want of exerciſe, being over-heated, hard labour, ſudden cold, drinking cold water when hot, want of bleeding when the body is full of blood and humours. Riding a horſe deep in cold water when he is hot, or letting him ſtand long in a cold damp air, or when there is a very cold wind then blowing; for all theſe have a tendency to render the blood and humours of that conſiſtence, as is generally termed a pleuritic blood.

The ſymptoms of a pleuriſy and peripneumony are much the ſame, only in the former, the horſe is more reſtleſs and uneaſy, and ſhifts about from place to place, and frequently turns his head to the affected ſide. The fever ariſes ſuddenly to a very great height in the beginning of this diſeaſe, and he often ſtrives to lie down, but ſtarts up again immediately. His ears and feet are burning hot, and his mouth parched and dry.

dry. As the diſeaſe advances, he does not offer to lie down at all, but runs back as far as the collar will let him, and then ſtands immoveable, panting, or endeavouring to cough, till he drops down dead.

This diſeaſe, at its firſt onſet, has been frequently miſtaken for the gripes, but may be readily diſtinguiſhed from them; for in the gripes, the horſe lies down and rolls, with his eyes turned up, and his limbs ſtretched out as if he was a dying, with convulſive twitches. His ears and feet are not conſtantly hot, but are ſometimes almoſt as hot as fire, and at other times as cold as ice. Likewiſe he ſometimes falls into profuſe warm ſweats, and then into cold damps; he ſtales and dungs with great difficulty, and the ſame ſymptoms continue till he finds relief.

In an *Inflammation of the lungs*, the horſe is more dull and heavy, and never attempts to lie down at all; when his mouth is opened, a great quantity of ropy ſlime will fall therefrom; and a reddiſh or yellow matter ſticks to the inſide of his noſtrils, from a gleet that runs from thence. There is no extraordinary beating in his flanks, nor is his belly tucked up as in the pleuriſy. His ears and feet are generally cold, and he often falls into damp ſweats.

The cure of both theſe diſeaſes is much the ſame, the intention of which, is to remove the ſtagnation of the blood, and to promote its equal circulation. In order to this, we muſt endeavour to prevent the farther congeſtion of the blood, and to render it more fluid. There is nothing more proper to prevent the farther inflammation, than letting of blood as ſoon as poſſible, and to take away three quarts at once, and if there is no great alleviation of the ſymptoms, two quarts the next day, unleſs they continue violent, and then bleeding may be repeated ſooner. But if the horſe was low before he fell ill, or was pretty old, then take away a quart at once and repeat it in twelve hours time, and then the next day, if the caſe requires it. This operation

ration, when uſed in time, has often removed the diſeaſe of itſelf.

The next thing to be done is, to rub the bliſtering ointment, to be had at the apothecaries, all over his briſket, into the foremoſt ribs, and when it is a pleuriſy, into the pained ſide more particularly. Rowels alſo will be of great ſervice when they digeſt in time. Therefore he may have one in the belly on the affected ſide, and one on each ſide the breaſt: but if he has a great motion of the flanks, that on the ſide will not come to digeſtion, and then it will be beſt to make one on each thigh on the inſide.

It will be likewiſe neceſſary to keep the body open with emollient clyſters.

Take of thin water gruel two quarts; of camomile flowers four ounces: boil them a little, and ſtrain off the liquor; then add of ſallad oil, or linſeed oil, half a pint; of common ſalt an ounce; of ſaltpetre half an ounce; make a clyſter to be injected warm.

Oily balſamic medicines given inwardly, are of great uſe, ſuch as the following ball and drink.

Take of oil of ſweet almonds, or linſeed oil, two ounces; of ſpermaceti an ounce; of ſaffron half a dram; of ſaltpetre half an ounce; of ſugar-candy four ounces. Beat them into a paſte for balls, with a ſufficient quantity of wheat flour; and make the balls of ſuch a ſize, as will be moſt convenient for the horſe to ſwallow in his preſent condition. This is for one doſe. Then

Take male ſpeedwel, colts foot, ſage, liquorice, of each two ounces; of fenne' ſeeds an ounce and a half. Pour two quarts of hot water upon them, and let the infuſion ſtand till it is cold; then ſweeten it with honey. It muſt be warm when given to the horſe.

Theſe balls may be given him twice or thrice a-day, with three or four hornfuls of the pectoral infuſion. Some add half a pound of figs, two ounces of garlick, half an ounce of aſſa fœtida, and the ſame quantity of horſe radiſh. As alſo two drams of ſaffron, a pint of

linſeed

linſeed oil, and a pound of honey. But the balls are ſo contrived, as to render theſe additions unneceſſary except the figs; and when theſe are added, they muſt be boiled in the water ſome time to render them mucilaginous. Gibſon orders two drams of ſugar of lead in his balls, I ſuppoſe to render it more cooling, but very injudiciouſly; for there is nothing more pernicious than ſugar of lead taken inwardly; for it is not only bad for the nerves, but would render a horſe coſtive, and by locking up the humours, tend to increaſe inſtead of abating the inflammation.

When the clyſter does not prove cleanſing enough, but a farther evacuation is required, you may add four ounces of Epſom ſalts. As for purges, they muſt be entirely omitted in theſe diſeaſes. Beſides, all draſtic purgative ingredients are of dangerous conſequence even in clyſters.

The clyſter may be repeated every day, or if the ſymptoms are abated, every other day; and when he comes to eat ſcalded bran, and pick his hay, you need only give him the pectoral infuſion, with four ounces of linſeed oil in every doſe. He ſhould have four ounces of it once a day, till he is fit to walk abroad, and always remember to keep his body open, for that is a thing that muſt never be neglected, even when he is almoſt well, if he ſhould ſeem to want it.

His exerciſe ſhould be little at firſt, even when he ſeems able to undergo more; and it ſhould be increaſed by little and little. It ſhould be performed in the warmeſt part of the day, unleſs in the height of ſummer, and on the higheſt, openeſt place that is near you. He ſhould never be taken out of the ſtable in bad weather, till he is quite recovered.

After the diſeaſe is cured, the lungs will be ſometimes ſo affected as to endanger a conſumption, and there we muſt take as much care as we can to prevent it. Therefore the beſt way will be to keep the horſe to light diet for a fortnight, or three weeks: that is,

give

give him a quartern of ſcalded bran every day, with two or three ſmall feeds of good ſweet oats, ſprinkled with chamber lye. Sometimes put a large ſpoonful of flour of brimſtone and honey into his bran, which is very good for the lungs; and for change, let him have a quart of barley well ſcalded, ſo as to make it ſoft.

When the horſe in this diſeaſe is not timely relieved, the inflammation will turn to an abſceſs; and if it breaks internally, he will grow weak, and decay inſenſibly. However, ſometimes the matter of this abſceſs will be tranſlated to ſome other part. Particularly, it has formed an abſceſs on the inſide of the fore-leg, a little above the knee, between the interſtices of the muſcles, and ſometimes near the onſet of the ſhoulder on the inſide. But this is moſt common when there is an external pleuriſy: that is, an inflammation of the intercoſtal muſcles: this is the fleſh that lies between the ribs.

This may be known by a ſtiffneſs of the body, ſhoulders, and fore-legs; eſpecially from his ſhrinking when thoſe parts are handled; and ſometimes there is a ſhort cough at the beginning. This may be carried off by bleeding alone: but if the pectoral infuſion be added, it will not be amiſs. When an abſceſs is formed in theſe muſcles, and points outwardly, you muſt forward it by anointing the part with ointment of marſh-mallows. Great care muſt be taken not to drive the humour back by repellents, and then no danger will enſue. On the other hand, this is ſometimes critical, and may free the body from dangerous diſeaſes.

Sometimes the midriff may be inflamed; but it is doubtful whether it ever happens alone, without the inflammation of the adjacent parts. But let that be as it will, the cure will be the ſame as in the pleuriſy. One principal ſign is ſaid to be a *delirium*, which is true in men; but how it is diſcoverable in horſes, otherwiſe

wiſe than by their becoming unruly, I am at a loſs to know. Sometimes the horſe's mouth is ſhut up in ſuch a manner, that neither meat nor medicine can enter that way; but then it is a fatal ſymptom, and a forerunner of death.

Of LOW, PUTRID, *and* MALIGNANT FEVERS.

A Low, putrid, and malignant fever ſeldom riſes to that degree of heat which attends inflammatory fevers, but creeps on gradually, while nature endeavours to get rid of her enemy, ſometimes by one outlet, and ſometimes by another; inſomuch, that we are not able to determine which of the ſecretions to promote, and this renders the method of cure very precarious and uncertain. Theſe ſort of fevers have been often miſtaken for ſevere colds, which has produced fatal errors. And to ſay the truth, it requires the higheſt ſkill in farriery, to manage theſe diſeaſes in a due manner, and to prevent their ending in a conſumption.

All kinds of irregularities, either in diet, reſt, exerciſe or labour, when long continued, may produce theſe fevers, becauſe they all tend to generate bad juices, deprave the blood, and depreſs the ſpirits, and therefore the only way to prevent them, is to keep the horſe from exceſſes of all kinds; for what tends to preſerve his due temperament, is the moſt likely method to preſerve him from diſeaſes in general, and this kind of fever in particular.

When this fever begins to appear, the horſe feeds but little, eating a mouthful or two, and then leaving off; he has a conſtant moiſture in his mouth, moves his jaws in a feeble manner, and has an unpleaſing grating of his teeth. He has a ſlow fever, attended with a depreſſion of the ſpirits, which is at ſome times more

more remarkable than at others; his heat is variable; ſometimes there is none appears outwardly, but rather a remarkable coldneſs; at other times he will be hot all over, but not to any great degree. His eyes are generally moiſt and languid, his body is open, his dung ſoft and moiſt, but ſeldom greaſy. His ſtaling is generally irregular, ſometimes very profuſe, and at others very little. His urine is generally pale, without a ſediment, and very ſeldom high coloured.

With regard to prognoſtics, if the fever ſenſibly abates, and his mouth grows more dry, the grating of his teeth ceaſing at the ſame time; if his appetite mends by degrees; if he begins to lie down, which at firſt he ſeldom does, for a week or a fortnight, or longer, there is no doubt of his recovery, unleſs through bad management.

But if his appetite is conſtantly upon the decline, and goes off gradually, till at length he forſakes all manner of food, while his fever continues at a ſtand, or increaſes; if the horſe is old, with poor vapid blood, or has lately met with any ſevere accident, there is little good to be expected, unleſs by the conſummate ſkill of the perſon who takes care of him. While the diſeaſe continues in a moderate degree, he will feed, though but poorly; his urine will be pale and thin, without any ſediment; his dung will be ſometimes looſe, and ſometimes hard; his mouth will continue moiſt, with a redneſs and ſpungineſs about the roots of his teeth; his ſkin will ſometimes feel dry, and ſometimes moiſt and damp, with a roughneſs of his coat. While the horſe remains in this ſtate, the exhibition of proper medicines will in all probability work a cure.

The cure of this diſeaſe may be begun by bleeding; but the quantity of blood to be taken away muſt be regulated according to the ſymptoms. When the horſe is plethoric, and there is a redundancy of blood and humours, you may take away two quarts at leaſt,

and

and that as ſoon as poſſible: if the horſe is in a moderate condition, a quart or three pints will be ſufficient: but when he is old, poor, and low, it will be dangerous to take away any at all. In general, when there is any ſymptom of an inflammation, then it is neceſſary the horſe ſhould loſe blood, let his condition be what it will. This done, give him a pint of the following infuſion twice a day.

Take water germander, pennyroyal, and rue, of each an ounce; camomile flowers, and galanga's bruiſed in a mortar, of each half an ounce; of ſaffron the ſame quantity. Put theſe in an earthen pan, and pour two quarts of boiling water upon them, and then cover the pan with a pewter p'ate, and when the infuſion is cold, pour it off into another veſſel.

As this fever is attended with a depreſſion of the ſpirits, I have added a dram of ſaffron to the infuſion more than uſual, for cordials are very good to enable the horſe to ſupport the violence of the diſeaſe, and diſpoſe him to ſend off the morbific matter by ſome outlet of the body. One doſe muſt be given in the morning faſting, and about two hours before feeding in the afternoon. If wine is ever allowed a horſe, it ſhould be in this deſtemper, eſpecially if he is low and ſinking. Then half a pint of mountain mixt with each doſe of his drink will help to mend his ſtomach, raiſe his ſpirits, and ſtrengthen the whole nervous ſyſtem. The greateſt danger in this diſtemper is the ſuppoſing the horſe to ail little or nothing, till he is too far gone for a cure, becauſe he will keep picking and eating his hay during the firſt ſtage of his diſeaſe. Afterwards, if he is allowed oats, he will eat nothing elſe till his ſtomach quite forſakes him. Therefore, if his diſeaſe is known in time, inſtead of oats he ſhoud have ſcalded bran; and if he refuſes to eat it ſcalded, he ſhould have a little raw ſprinkled with clean water, with ſome fine hay put into his rack by a handful at a time. But if he is neither able nor willing to lift his

head to the rack, it may be given by hand, which may tempt him to eat, eſpecially if he has been uſed to be fed that way.

As horſes in this diſeaſe ſeldom drink ſo much as they do in a healthy ſtate; and as it is impoſſible he ſhould recover, if he does not ſwallow enough to dilu e the blood and promote the ſecretions, if he will not drink warm water or water-gruel, it will be beſt to indulge him with cold, let the ſeaſon of the year be what it will; eſpecially as no bad effects have been perceived from it, but on the contrary it has tended to refreſh him, and render him more lively and active, as well as to mend his ſtomach, and make him more fond of hay. We cannot ſay that water diſſolves the coagulated blood, and renders it more fit for an equable circulation, becauſe in ſome fevers it cannot be brought to mix with the blood; but we are certain that unleſs the horſe drinks water enough to aſſiſt the operation of other medicines, they can have little or no effect. When the fever is low and depreſſed, it may proceed from the poverty of the blood, and may be eaſily gueſſed at from the ſtate of his body before he fell ill; for if he was poorly fed, or in a bad paſture, or has been greatly harraſſed by hard labour or long journeys, or is much advanced in years, then his blood will be poor and low, and will produce a fever much of the ſame nature as the nervous fever in men. In this caſe bleeding muſt be omitted, and he ſhould have cordials, ſuch as half a cordial ball, or leſs, four or five times a day, for the giving ſuch things often in ſmall quantities will keep up his ſpirits much better than full or large doſes at once. Not forgetting two or three horns of the infuſion to waſh it down every time.

When the fever is evident, and ſtill continues, with little appetite, ſtaling often, and the urine continues to be pale, and the dung ſometimes looſe and ſometimes hard, with a very moiſt mouth, and a ſkin that

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is ſometimes dry and ſometimes damp, then he muſt have ſomething of a more cordial nature; thus,

Take powder of myrrh, bay-berries, round birthwort, gentian root, and Virginia ſnake root, of each half an ounce; of ſaffron two drams; mithridate and liquorice powder, of each an ounce; of oil of amber a ſufficient quantity to make them into paſte for balls, which divide into four; one of which is to be given every morning, and another in the afternoon two hours before feeding time, with three or four horns of the infuſion.

In this caſe it will be proper to ſtrengthen the infuſion with half an ounce of Virginia ſnake-root, and an ounce of tincture of caſtor: this laſt is much better than two drams of caſtor in ſubſtance, as *Gibſon* preſcribes, for a watery menſtruum will take up little or nothing of the virtues of the caſtor. This done, add a pint of mountain to the whole, and then divide it into four parts, for two days; and then let it be made freſh again. Theſe may be continued ſix or ſeven days, or till the fever abates. Or,

Take myrrh, bay-berries, contrayerva root, Virginia ſnake-root and caſtor, of each an ounce; ſaffron and camphire, of each three drams; of powder of liquorice two ounces; make them into a paſte with oil of amber for four balls, to be given as before.

Take the leaves of angelica, water germander and rue, of each an ounce; camomile flowers and gentian, of each half an ounce; ſaffron and ſalt of wormwood, of each two drams: put them into an earthen pan, and pour two quarts of boiling water thereon, and when it is cold pour off the infuſion, and then add a pint of mountain wine, to be given after the ball, as the former.

When the horſe has ſo far recovered his ſtrength that he is fit to be taken out of the ſtable, lead him into the open air, which will contribute greatly to his ſpeedy recovery.

Coſtiveneſs is bad in all diſeaſes, but more particularly thoſe of the head, and fevers; and therefore

whenever you find the horſe in this condition, you muſt have recourſe to ſome one of the emollient clyſters before preſcribed. If this ſhould prove inſufficient, as it ſeldom does, you may put four ounces of Epſom ſalt into one of his drenches, which will have a good effect without raiſing commotions in the blood. If on the contrary a looſeneſs ſhould happen, it is often critical, and therefore ſhould not be ſtopt immediately. But if it continues long, put diaſcordium in the firſt ball inſtead of the mithridate. But if it turns to a downright looſeneſs, you muſt have recourſe to the medicines under that title.

When a horſe piſſes too much, let all his drink be made with lime-water inſtead of common water, which will generally ſucceed. On the contrary, if he ſtales too little, give him the following ball.

Take juniper berries pounded, Venice treacle, and hoglice, of each an ounce; make them up into a ball with oil of amber.

Gibſon preſcribes an ounce of ſaltpetre inſtead of the hoglice, but that is too cold in this diſeaſe, and may do a great deal more harm than good. When his legs and body begin to ſwell, this muſt be repeated three or four times at proper intervals, with a pint of the decoction of parſley root, or fennel root in ſpring water. It is made with three ounces of the roots to three pints of water, boiling them ſo that a quart of the liquor may remain when ſtrained, and ſweeten it with ſix ounces of honey. Take care to leave it off as ſoon as the ſymptoms ceaſe.

When beſides the ſymptoms already mentioned, the horſe has cold fits, attended with trembling, an inward ſoreneſs, a running at the noſe and eyes, with a very great heavineſs and oppreſſion, theſe are ſigns of greater malignity, and that the blood and humours are in a high putrid ſtate, which creates a ſtagnation in the capillary tubes, a coagulation of the fluids, and which will be followed with their extravaſation from a rupture

ture of the veſſels. If this ſhould happen in the ſkin and turn to ſcabby eruptions, it denotes the change of the diſeaſe from acute to chronic; but when it happens internally, which can only be known by gueſs, a lingering death will enſue.

In this caſe there can be nothing better for a horſe than camphire, which has been already preſcribed, and which with contrayerva, ſnake-root, and caſtor, will be excellent in this degree of the diſeaſe. But then the doſes ſhould be larger; and inſtead of dividing the maſs into four balls, it is better to make them into three. The drink needs no amendment, for it cannot be detrimental whatever ſymptoms appear, and may do a great deal of good; nor have we any reaſon to deſpair of recovery by theſe means.

But in this degree of the diſeaſe it ought to be remembered, that there is always an ichorous diſcoloured matter, which ſometimes looks reddiſh, or of a duſky green: it is of a very clammy viſcid nature, and will ſtick to the inſide of the noſtrils. Now if this matter becomes thin, and has the appearance of clear water, and when the horſe falls away at the ſame time without being hide-bound, it is a certain ſign that he will recover, and then you need only continue the medicines a few days longer.

But if the matter continues to ſtick to the inſide of the noſtrils, and he ſeems to blow through them with difficulty, at the ſame time ſnivelling and ſneezing, we ſhall have great reaſon to apprehend the conſequence, and there can be no hopes but in the ſpeedy uſe of the things above preſcribed. If beſides theſe ſymptoms the horſe becomes hide-bound, keeps his fleſh, forſakes his meat, grows more weak and feeble; if his joints ſwell, and the kernels under his jaws are tumid and feel looſe; if his breath ſmells ſtrong; if his tail is raiſed and quivers; if his eyes look fixt and dead; if his excrements are a fetid, dark-coloured matter, his caſe is deſperate, and any farther charge will be loſt

upon him: nor is it worth while to make any farther attempt to ſave him, it being altogether beyond the power of medicine.

The ſigns of recovery are, when the ſkin of the horſe feels kindly, and not hide-bound though he has fallen away; his eyes begin to look briſk and lively; his appetite grows better; the running of his noſe ceaſes and becomes quite dry; his excrements and urine are both voided in the ſame manner as before he was taken ill; he lies down and takes his reſt without any uneaſineſs: if he happens to have breakings out on his ſkin at this time, it is no bad ſymptom, but on the contrary may prove very beneficial. Now medicines are of no further uſe, and the completion of the cure depends upon due care and management, which conſiſt in ſupplying him with ſuitable diet and convenient exerciſe. We may well ſuppoſe that every tedious diſtemper weakens the digeſtive faculties, and conſequently that a horſe is not able of a ſudden to concoct the ſame quantity of meat as before he was ill; conſequently it muſt be very imprudent to allow him as large feeds now when he is weak as were given him when he was well. I know the deſign of it is to bring him to his fleſh and ſtrength the ſooner; but this is a great miſtake, and is like to cauſe the diſeaſe to return: for though a horſe's ſtomach is craving, and he ſeems greedy of food, yet as he will not be able to digeſt it, ſo as to enlarge the quantity of good chyle, he muſt neceſſarily generate crudities, which may cauſe a relapſe, or at leaſt throw him into a ſurfeit, which may prove as bad. Hence the neceſſity appears of feeding ſparingly at firſt, and of giving him provender by little and little, in proportion to his ſtrength. He ſhould be likewiſe aired every day; for freſh air is as neceſſary to reſtore all the functions as a convenient repaſt, as is evident to all who know what a ſpeedy effect the change of air has on the human ſpecies for the recovery of their health. And then gentle exer-

ciſe,

ciſe, encreaſed by degrees, will bring him to his wind and his fleſh: and this is done by promoting a due diſtribution of the chyle, and a regular circulation of the fluids.

Of CONTAGIOUS DISTEMPERS *and* EPIDEMICAL FEVERS.

EPIDEMICAL diſtempers are allowed on all hands to proceed from the air, or rather from deleterious particles contained therein. Theſe may be of a fermentative, putrid, or cauſtic nature. Such particles may proceed from corrupt ſtagnating water, which exhale therefrom and float in the air; for all waters without motion will ſoon turn putrid by the heat of the ſun, and ſend off noxious effluvia. Thus all water, though at firſt never ſo pure, and at a diſtance from any thing that may hurt it, is ſo full of ſulphureous and earthy particles acquired from the earth, that by reſt and the heat of the ſun it will ſoon grow muſty and fetid, as we may ſee in all marſhy places.

The effluvia of marſhy and corrupted waters, being elevated into the air, generate fevers of the worſt kind; for which reaſon they often follow the overflowing of the waters or land-floods. Thus we ſee that no nation in the world is more afflicted with epidemical diſeaſes than Egypt, which is owing to the overflowing of the Nile: and it has been found by experience, that unleſs the flood is much greater than uſual, ſo as to lay the whole country under water, the plague never appears among the inhabitants: for in this caſe, as the country becomes one continual marſh, and is ſubject to ſouth winds at that time, with a violent heat of the ſun, the putrid exhalations fill the air, and create ſevere peſtilential diſeaſes: and what makes this more plain is, that

the moſt violent heats alone never produce the plague. At Alexandria the people are always troubled with bad fevers in the autumnal ſeaſon, becauſe they let the waters of the Nile into ciſterns under their houſes, which growing corrupt and putrid, conſtantly produce theſe diſeaſes.

We may likewiſe obſerve in our own country, that great land-floods often create acute epidemical diſeaſes of a malignant kind. For the ſame reaſon, long rainy ſeaſons, accompanied with a ſouth wind, are very unwholſome, eſpecially if theſe are ſucceeded with a great heat at firſt, and cold weather afterwards; and if this happens in the ſpring or autumn it is the worſe. Perhaps ſtagnating waters would not have ſuch terrible effects alone, if they did not produce ſuch a prodigious quantity of pernicious inſects at the ſame time, which were always looked upon as the cauſe and forerunners of epidemical diſeaſes.

The air being an univerſal menſtruum by its expanſive elaſtic force, and by its hot etherial matter diſſolves the more ſubtile parts of all bodies, which producing exhalations of various kinds, do, by their mutual conflict, combination and mixture, and alſo by the aſſiſtance of the ſun, put on various forms and textures. Thus the air is always full of ſaline, ſulphureous particles, as well as nitre, which is an inflammable elaſtic ſalt; and therefore it is no wonder that thoſe, being mixt with the different exhalations which proceed from the earth, in different ſeaſons of the year, and according to the different operations of the ſun and winds, ſhould produce various concretions, which, being received into the bodies of animals, ſhould cauſe different kinds of epidemical diſtempers, which are only to be known by their ſymptoms, and not by any preceding diſpoſition of the air or weather. However, we are certain that they chiefly produce their effects in the evening and in the night, when the vapours are condenſed by the cold and moiſture, and ſo deſcend

nearer

nearer the earth. Hence we find that dews, miſts and fogs are not only pernicious to animals, but to the fruits of the earth. The terrible effects which mill-dews produce in plants, herbs, and trees, is but too well known to every country farmer. Beſides, the damage they do the fruits of the earth is not all, for animals that feed upon them are often afflicted with various diſeaſes.

The air does not only abound with deleterious effluvia, but with animalcules, eſpecially in the night, which are ſucked into the body by the breath. This chiefly happens near ſtagnating waters and marſhy grounds, for theſe places are the ſeminaries of ſuch ſort of inſects. Their prodigious ſmallneſs muſt be evident to all thoſe who have made uſe of a microſcope properly. Lewenhoeck affirms that many hundreds of theſe are not equal to a grain of ſand, and therefore it is no wonder the eggs ſhould be carried about in the air. That this is the caſe is plain from the dews which fall upon the fruits, herbs and plants, from whence a great number of ſmall inſects and worms ariſe, as is well known to gardeners and huſbandmen: and alſo that when quadrupedes feed upon theſe infected vegetables they either fall ſick or die immediately. Therefore ſince theſe ſorts of dews are ſo pernicious, it would be well if horſes were ſheltered in the night from theſe dangerous accidents at ſome ſeaſons of the year. For it is well known, that if the inhabitants of Rome happen to ſleep out of the city in the night time, they are often ſeized with grievous ſymptoms, and many of them die, which is owing to the vaſt number of inſects wherewith the Roman air is infected, and which fall down with the nocturnal dews.

Though what has been hitherto premiſed may be thought principally to relate to mankind, yet we may ſafely conclude that all quadrupedes are concerned more or leſs, I mean thoſe that feed upon vegetables; for whenever the graſs is contaminated with inſects or otherwiſe,

otherwiſe, they are moſt likely to ſhare immediately in their dangerous effects. And perhaps if this reaſoning was more carefully attended to, we ſhould be able to give a better account of epidemical diſeaſes among ſheep, horned cattle, and horſes, than has been hitherto done: for horſes as well as men are often ſubject to epidemical fevers from ſuch cauſes as theſe, which become infectious, and approach nearly to the peſtilential kind. Hence, in turning over the chronological hiſtories of our own country, we ſhall often meet with diſeaſes that are there called a murrain, which have ſwept away a vaſt number of horſes, like a real plague. However, there are many epidemical diſeaſes of a very ſlight nature, which ſeize great numbers at once, and yet paſs off without the aſſiſtance of medicine.

The worſt fevers of this kind which we meet with at preſent, begin with a ſeeming ſtupidity, ſwelling of the eyes, eyelids, and the ke nels near the ears and throat, with a plentiful running from the noſtrils, which is of a duſky colour: the ſame kind of matter is alſo voided by the mouth, of a diſagreeable ſtinking ſmell. The limbs, and particularly the joints, are affected with ſudden, large ſwellings, which are often attended with the ſtaggers, reſembling an apoplexy. This diſtemper happens very ſeldom, but when it does, it is to be treated, as in the former ſection, with Virginian ſnake-root, contrayerva root, camphire, mithridate, caſtor, &c.

The diſtempers we moſt often meet with, are epidemical colds, which attack great numbers at once, and which are attended with ſwellings in the glands under the ears, and about the throat, which are more conſiderable than the common diſeaſe called by that name. This is to be cured in the ſame manner as other colds, only we muſt take a particular care to cover the head and neck, and to keep them warm. They commonly run prodigiouſly at the noſe in two

or

or three days time, which continues for five or ſix days; but though this makes them fall away greatly, yet if it is of a good colour and conſiſtence, it is attended with no danger. As this is a catching diſtemper, it will be beſt, as ſoon as one horſe is infected, to remove thoſe near him to another place. Bleeding in ſuch diſorders as theſe yields the ſpeedieſt relief, and then ſuch pectoral medicines as are given in a common cold, with a diet of ſcalded bran and hay. Sometimes half a pint of white wine will be proper, with three ounces of oximel of ſquills to promote expectoration.

Of the STRANGLES.

THE ſtrangles is a diſeaſe that attacks young horſes, chiefly before ſix years of age; though ſome are affected with it beyond that term, however, they never have it but once. It is ſomewhat analogous to the quinſey in men, and generally forms an abſceſs, which breaking, diſcharges a humour, and renders the horſe more healthful afterwards.

It is a ſwelling under the throat between the jaw bones, and its principal ſeat appears to be the muſcles of the tongue, wherein there is an inflammation, and therefore it ſeems to differ from a quinſey in the ſeat of the diſtemper only. We ſcarce need to obſerve that an inflammation is always attended with pain, which, while it laſts, renders ſwallowing very difficult.

The cauſe of the ſtrangles, like the ſmall-pox, ſeems to lurk in the blood of a horſe, which at certain times it will throw out and get rid of; hence many colts have them at graſs, and get over the diſtemper only by the benefit of nature, without any help from art; for the tumour breaking, diſcharges a great quantity

tity of matter, and then the ulcer heals of itſelf, and ſo puts an end to the diſeaſe.

When a horſe is ſeized with it in the ſtable, you may perceive that it is coming on, by an unuſual heat, as though he was going to have a fever, with a cough that diſcovers the horſe to be in pain. Some, notwithſtanding the pain, will eat and ſwallow a little though with difficulty, while others will looſe their appetite entirely; at this time a ſwelling begins to appear, which ſometimes is on the inſide of the jaw-bone, ſometimes under the tongue, and ſometimes in the upper part of the throat, about the larynx and pharynx, or the head of the wind pipe and gullet, which makes him breathe with difficulty, occaſions his noſtrils to turn outwardly, and his eyes to look as if they were fixt in his head. When it is the worſt kind, the noſe runs at the ſame time, and then it is called the *baſtard-ſtrangles*.

With regard to the prognoſtics, when the ſwelling begins on the inſide of the jaw-bone, it ſhows it will be a long time before it grows ripe or impoſthumate: When it riſes between the jaw-bones in the middle under the tongue, it is a ſign the diſeaſe will be mild, and of no dangerous conſequence; when the ſkin that lies over the tumour is ſtiff, diſtended and tight, feeling hot and dry, a large ſwelling is portended, which will yield a plentiful diſcharge when it breaks. When it riſes to the glands, and is, as it were, divided into knots, it is a ſign that the diſeaſe will be long and tedious, becauſe the tumours will break in ſeveral places, and at different times. When it lies at the head of the gullet or windpipe, the horſe will not be able to ſwallow for ſeveral days, till the ſwelling deſcends more to the outward parts: but when he has a purulent running at the noſe, it portends great danger, and ſhows it is complicated with ſome other diſeaſe which lies lurking in the blood; but if it goes off as the tumour ripens, the horſe may do well.

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The cure requires no great ſkill, becauſe all that we have to do is, to promote the breaking of the ſwelling, which may be done by anointing it often with the ointment of marſh-mallows, ſo as never to ſuffer the ſkin to become dry. This commonly happens in five or ſix days time: and as nature is always very indulgent in the cure of this diſeaſe, we have nothing to do but to lend her a little aſſiſtance, that it may be ſooner brought to perfection. And, indeed, in all other caſes, the tendency of nature ſhould be carefully obſerved; for the ſkill of all practitioners conſiſts chiefly in the forwarding her motions. Some in this caſe make uſe of cataplaſms or poultices, but then they muſt be ſuch as are not apt to turn dry, and that will ſtick cloſe to the part affected; otherwiſe they will repel the humours, which may be of dangerous conſequence to the eyes and lungs.

Bleeding, which in all other inflammations, is of great conſequence to retard the progreſs, will produce bad effects in this, becauſe it may recall the peccant matter back into the blood, and thereby prevent the breaking of the tumour, and keep the enemy in the body, which ought to be expelled out of it. Some who are never eaſy, unleſs they are doing ſomething, will often open the ſwelling before it is ripe; not conſidering that this practice prevents the due diſcharge of the matter, which is always moſt plentiful when it comes to a head of its own accord, and will always be cleanſed, and heal the ſooner and better. Beſides, when an inciſion hinders the carrying off of the humour by the uſual outlet, nature will attempt ſome other way, commonly by a running of the noſe, which may have fatal conſequences; while, at the ſame time, the wound itſelf turns to a malignant ulcer, with hard callous lips, and with a continual gleeting, which of itſelf would give a great deal of trouble in the cure. When the tumour breaks of itſelf, ſome think it neceſſary to make the orifice wider, by putting in a

ſpunge

ſpunge tent; but this is altogether ſuperfluous, becauſe there is always room for running off the matter, without any operation of that kind. However, when the horſe has fallen into bad hands, and improper applications have been uſed, ſo as to drive any part of the humour back, then enlarging the orifice may not be amiſs.

Bleeding, as we obſerved before, when this diſeaſe is genuine, is always unneceſſary, and commonly dangerous; but when it appears with uncommon ſymptoms, ſuch as a ſwelling of the neck about the onſet, ſtiff jaws, and the noſtrils turned outward, which are ſigns of a dangerous inflammation; then we may venture upon taking away blood to ſtop its progreſs. We ſhould likewiſe anoint the parts well with the ointment of marſh-mallows, never ſuffering them to become dry, and cover it with a thin woollen cloth firſt, and afterwards with a warm hood.

Sometimes the inflammation is ſo great, as to corrode and eat away the ſkin that contains the matter in ſuch a manner as to occaſion it to fall off in pieces, and to lay open the ſpaces between the muſcles, and to uncover the adjacent glands or kernels; but this ſymptom, as alarming as it ſeems, is not at all dangerous, for the ſkin and hair will come again perfect as at firſt, without any other aſſiſtance than what has already been recommended.

In ſome caſes when the ſwelling is ſmall, the horſe ſeems to be little affected with the diſorder, and eats and drinks as uſual. In this caſe, the tumour will be ſome time before it grows ripe and breaks; but as this will happen in due time, I ſhould think it cruel to burn the ſkin of the part with a torch, to make it crack, or to open it with a red hot iron, ſince, if we have but patience, the horſe will do very well without thoſe inſtruments of barbarity.

Sometimes the ſwelling is more inwardly, and will break into the mouth, without any dangerous accident;

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in this caſe we have nothing to do but to keep the horſe's mouth ſweet, by waſhing it with ſome antiſeptic fluid. White wine vinegar, ſweetened with honey, will be ſufficient for this purpoſe; or it may be mixt with an equal quantity of ſpirit of wine, and ſweetened as before. By this means, the outward ſwelling will diſappear in due time: but then the horſe ſhould have ſoft feeds of ſcalded bran, in this as well as all other kinds of this diſtemper, and his drink ſhould be water gruel, given him very freely, becauſe, if the blood is not properly diluted, the diſeaſe will not come ſo ſoon to a happy iſſue.

When this diſeaſe is attended with a fever, which ſhows any ſigns of malignity, it will be proper to give him a drink to alleviate the ſymptoms.

Take water germander, pennyroyal and rue, of each an ounce; camomile flowers and bayberries, of each half an ounce; of ſaffron, a dram. Pour a quart of boiling water upon them, let them ſtand twelve hours, and then pour off the infuſion, which is for one doſe: ſweeten it with a little honey, and give it him in the morning.

This may be repeated at the ſame time of the day, till the tumour is ripe, and then medicines of every kind will be unneceſſary.

When the horſe has a running at the noſe, and the tumour has little or no inflammation, but on the contrary is cold, and ſhows no ſigns of ſuppuration, then it will be proper to open it with an actual cautery, which, by making an ulcer in the part, may probably drain off the humour, and cauſe the running at the noſe to ceaſe. But if it has not this effect, the caſe will ſtill remain dangerous. However, it may be poſſible to dry up this humour by proper decoctions repeated every morning. Boil two ounces of the greater burdock root, in three pints of water to a quart: this is for one doſe: or take the ſhavings of guaiacum wood and ſaſſafras, boil them in the ſame quantity of water as before. Gibſon adviſes an ounce of the powder of

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the bark in a pint of red wine, which is to be repeated three or four times; but I confeſs I cannot ſee what good effect the bark can have in this diſtemper. But as for the decoctions, they have been found often beneficial.

Of the IVES *or* VIVES.

THE ives is a diſtemper ſeated in the glands and kernels under the ears of a horſe, and hath ſome affinity to the ſtrangles. At firſt theſe glands are ſlightly inflamed, and then ſwell, but ſeldom or never come to ſuppuration. It ſeems to me to be rather a ſymptom of a diſeaſe than a diſeaſe itſelf, becauſe it is attended with a cough, and a difficulty of ſwallowing. Sometimes a horſe is ſo ſore, he can ſcarce bear touching about the neck and throat: ſometimes his eyes are watry and tender. It is generally attended with a fever, and if he is ſhedding his teeth, there is a redneſs and ſwelling of the gums. If a lampaſs ſupervenes to this, it is commonly very large, and reaches beyond the edges of the upper teeth. When the ives attacks bad horſes, it is generally of a bad kind.

The cure muſt be begun by bleeding and anointing the ſwelled parts with ointment of marſh-mallows; the head and neck muſt be well covered, and if the fever continues, the bleeding muſt be repeated in a day or two; but there muſt not be ſo much blood taken away as at firſt. Sometimes this diſeaſe turns to the ſtrangles, and then it muſt be treated in the ſame manner. The frequent rubbing in of the ointment has a double effect; for it not only eaſes the pain, but the friction has a great tendency to remove the tumour.

When the ſwellings are obſtinate, and will neither diſperſe nor come to a ſuppuration, we muſt have recourſe to mercurial ointments.

Take

Take of hog's-lard a pound; of quickſilver three ounces; of common turpentine a quarter of an ounce; rub the quickſilver and the turpentine in a mortar together, till the quickſilver diſappears; then warm the lard and mix them together by little and little.

If this is too weak to effect the cure, the ointment muſt have more quickſilver. Thus,

Take hog's-lard a pound; of quickſilver half a pound; of balſam of ſulphur half an ounce; rub the quickſilver till it diſappears, and then warm the hog's-lard, and mix them well together by little and little.

Some of either of theſe ſhould be rubbed well in every day, or rather every other day, for fear of a ſalivation. Some recommend oil of bays inſtead of hog's lard as more proper for the ſwelling; but as to this, you may uſe your pleaſure. If the horſe has no fever, it will be proper to give him an aloetic purge or two while he is anointed; but if he be feveriſh, which you may know by feeling his heart, clyſters will be ſafer and better, of which you may chooſe one out of thoſe elſewhere preſcribed. When a horſe's heart beats much above forty times in a minute, you may conclude he has a fever.

Take of aloes an ounce and a quarter; gum guiacum and ginger, of each half an ounce; ſaffron and oil of anniſeed, of each half a dram; of honey, enough to make them into a purging ball.

His diet ſhould be ſcalded bran and water gruel. When his cough is bad, you may mix two ounces of flour of brimſtone, incorporated with honey, to the bran; and if he is hot and feveriſh, it will be proper to add an ounce of ſaltpetre once a day.

Parkinſon, and many others ſince his time, have had a great opinion of the flowers of fox glove for the diſperſing theſe kind of tumours, and even for the king's evil in mankind. They beat the flowers with freſh butter, or hog's-lard, till they are well mixt, and ſo make an ointment, which muſt be rubbed into

the ſwelling ſeveral times a day. Some let this ointment ſtand a fortnight, then boil it and ſtrain it for uſe.

Of OBSTINATE COUGHS, *the* ASTHMA, *and a* BROKEN-WIND.

THERE is ſcarce any diſeaſe ſo common and ſo complicated with other diſorders as a cough. It may be defined to be the effort of nature, to expel any foreign matter from the bronchia of the lungs, by their contractile force, greatly increaſed, with a more violent expiration.

But for the better explanation of its nature, it will be neceſſary to ſay ſomething of the conſtruction of the parts by which it is performed: the principal of theſe is the aerial canal or wind-pipe, by the help of which we fetch our breath. It is divided into the aſpera arteria, or windpipe, properly ſo called, and the bronchia. The firſt reaches from the lungs to the fauces or bottom of the mouth, and the other creeps into the whole ſubſtance of the lungs, and is divided into innumerable branches, all which conſiſt of cartilaginous ſegments, and contractile membranes, and terminate in ſmall veſicles, like bunches of grapes, and adhere to the ſmall branches of the bronchia, and ſo conſtitute the principal part of the ſubſtance of the lungs.

All the pipes, from the beginning to the end, are encompaſſed with a membrane conſiſting of longitudinal and annular fibres, with many glands, which have numerous excretory ducts. Theſe pour out a thin, roſcid, lymphatic, humour into the paſſages formed for breathing. The lungs likewiſe have arteries from the bronchial artery, which proceed from the trunk of the great deſcending artery, and is divided

ided into three branches, one of which runs exter-
ally upon the windpipe, and the other two through
he whole ſubſtance of the membranes of the trachea
nd the bronchia of the lungs. The veins come from
he bronchial veins, whoſe branches are propagated in
he ſame manner as the arteries, and terminate in a
reat trunk, which goes to the deſcending vena cava,
nd into the azygos or vein without a fellow. The
erves proceed from the par vagum and the intercoſtal
erve.

Theſe canals thus conſtituted, ſerve for the eaſy in-
ermiſſion and expulſion of the fluids, and are neceſ-
ary to promote the circulation of the blood, and for
he preſervation of life. For this purpoſe the glands
xcrete a thin lymph, to prevent the lungs from grow-
ng dry, as well as to keep them ſoft and ſlippery;
nd when it has performed its office, it is reſolved in-
o a vapour, and ſo flies off with the breath. The ſen-
ible nervous, as well as muſcular coats, give them a
notion of conſtriction and dilatation, which ſerve to
promote the ingreſs and egreſs of the air, as well as the
ecretion of the lymph by the glands, and likewiſe to
acilitate the circulation of the blood th ough the bron-
hial veſſels. But as theſe membranous canals are not
ufficient of themſelves for the performance of reſpi-
ration, the lungs, pleura, diaphragm or midriff, the in-
ercoſtal muſcles, and thoſe of the abdomen, contri-
bute thereto, inſomuch that there is a very cloſe con-
ent between each other; ſo it is impoſſible that one
part ſhould act without putting the reſt in motion.

When all theſe parts are duly conſtituted, and in a
healthy ſtate, reſpiration will be rightly performed;
but when they are diſordered, the breathing muſt alſo
be hurt. But as we are ſpeaking of coughs, I ſhall
omit the other diſorders, and obſerve, that a cough is
to the lungs what vomiting is to the ſtomach, that is,
their tonic motion is inverted; for in this diſorder the
conſtriction of the bronchial canals begins at the bot-

tom, and from thence is continued to the upper part, which being violent, forces the air out of the lungs in a rapid manner. When theſe are thus affected, they draw the other parts deſigned for reſpiration, and thoſe connected thereto, by conſent, into convulſive motions. Hence it appears why vehement coughing ſhakes the whole cheſt, abdomen, and the reſt of the body: and, on the contrary, when the diaphragm, ſtomach, gullet, the nerves of the pericordia and thoſe that depend thereon, as alſo when the pituitary membranes of the noſtrils are vellicated by any cauſe, the windpipe is drawn into conſent, and a cough is produced.

Now if the ſpaſmodico-convulſive motion is the formal ratio of a cough, thence it follows, that a vellication will produce this convulſive motion, and will become the proximate cauſe of a cough. Therefore all coughs have their ſeat in the breaſt, though the cauſe may be ſometimes elſewhere; and the variety of cauſes which contribute to a cough, will beget the ſeveral kinds of it, which we now propoſe to ſay ſomething about.

Thus a *phthiſical* or *conſumptive cough* ariſes from a colliquation of the veſicles of the lungs, by an ulcer formed therein; for the ulcerous matter by vellicating the lungs produces a cough. Beſides this, there are ſymptomatic coughs, which proceed from an inflammation of the lungs, a pleuriſy, a ſchirroſity and vomica of the lungs, from an inflammation of the diaphragm and the liver, and from breeding of teeth. Hence it appears beyond all diſpute, the cauſe of a cough may be ſeated in other parts beſide the breaſt, and that it is owing to a convulſive motion of the nerves.

Thus alſo any ſtrange body getting into the lungs will occaſion violent coughing; as moſt experience when any thing is ſaid to have gone the wrong way. A cough may likewiſe be cauſed by a defluxion from the

the ſtoppage of perſpiration, for then the acrid matter will irritate the lungs, and conſequently produce a cough.

From what has been ſaid, we may ſafely conclude, that particular habits or conſtitutions of body may have a particular kind of cough. As for what Mr. *Gibſon* ſays, that high feeding may cauſe the lungs to grow too large for the cheſt, and ſo occaſion a cough, there can be nothing in it; for no fat was ever yet ſeen on the lungs. But when the abdomen is overloaded with fat, the diaphragm or midriff may be preſſed upwards, and ſo leſſen the cavity of the cheſt, that there will not be room enough left for the lungs to play in, and then a cough may be produced.

Now as there are different kinds of coughs, we cannot be too careful in attending to the ſymptoms of each, in order to diſcover from what cauſe it proceeds, and then we may enter more directly and with certainty upon a cure.

Thus a conſumptive cough is attended with weakneſs, loſs of appetite, and waſting away of the body. A cough proceeding from tubercles of the lungs, or a vomica, is little or nothing when he is at reſt, or ſtands ſtill in a ſtable; but if he is put to any hard work, he will cough almoſt inceſſantly. When a cough proceeds from the liver, he will always have a working at his flanks. When the lungs are ſtuffed with ſlimy matter, which occaſions a cough, it may be known by his thick breathing, by the oppenneſs of his noſtrils, by the wheezing of his throat, by the large quantity of white phlegm proceeding from his mouth and noſe, eſpecially after drinking or exerciſe, and laſtly, by the motion of his flanks.

This laſt caſe is an aſthmatick cough, or one that attends the moiſt aſthma. But as for the nervous or dry aſthma, it has other ſymptoms; for a horſe has then all the ſigns of health, except a cough, which often returns, and ſometimes plagues him inceſſantly

by fits, without bringing any thing up. And the time of the return of the fit is very uncertain, yet he has generally ſomething of a cough in the morning or after drinking, or when he is affected by the changes of the weather.

When a cough, ſeated on the lungs, is not too far gone, and the horſe is young, there is reaſon to expect a cure; in order to which it will be proper to take away a moderate quantity of blood, to cloath him well, eſpecially about the head, and to keep him well littered. His diet ſhould be ſcalded bran with a ſpoonful of honey in each feed, and his drink water-gruel. The medicines ſhould be mercurial, which ſhould be given over night, and then purged off the next morning. Only at firſt he may take two mercurial balls together, that is, one each night, and a purge the next morning after the ſecond ball has been taken. Theſe may be repeated again three or four times, once a week, taking care the horſe does not take cold. The mercurial ball may be made thus:

Take round birthwort, gentian, bay-berries, myrrh, and mercurius dulcis, of each a quarter of an ounce: reduce them to powder, and make them into a ball with a ſufficient quantity of honey, for one doſe.

The purge may be as follows:

Take of ſuccotrine aloes ten drams; of Epſom ſalt an ounce; of flour of brimſtone half an ounce; of oil of anniſeed thirty drops: make them into a ball with honey.

Or this,

Take of ſuccotrine aloes half an ounce; myrrh and gum ammoniac, of each a dram; of ſaffron half a dram; of flour of brimſtone a dram: make it into a ball with ſyrup of maidenhair, or ſyrup of coltsfoot.

When the ſymptoms are violent, the mercurial ball may be given always two nights together, inſtead of one, without danger of a ſalivation, for the brimſtone given in the purge will repreſs the activity of the mercury.

Take

Take of coltsfoot two ounces; raiſins ſtoned, and figs, of each an ounce; of liquorice root half an ounce: boil theſe in three quarts of water to two, but don't put in the figs and liquorice till towards the laſt; then ſweeten the decoction with four ounces of honey.

This decoction is for two doſes, one of which is to be given in the morning after the purge, and the other the morning following When the diſeaſe has been in ſome meaſure ſubdued by theſe medicines, we may proceed to milder mercurials, mixt with reſolvents and pectorals.

Take cinnabar of antimony and gum guaiacum of each eight ounces; of powder of liquorice four ounces; of balſam of ſulphur two ounces; with a ſufficient quantity of honey, make them into a paſte for twelve balls, one of which is a doſe.

One of theſe balls is to be given every morning for two or three months. The horſe muſt not eat or drink for two hours before he takes the ball, nor for two hours after; but he may go to work as uſual, and may be fed with his ordinary quantity of oats, and a little ſcalded bran between. In the winter time the chill muſt be taken off his water.

When the cauſe of the cough is ſeated in the liver, it may be known by the yellowneſs of the eyes, mouth and lips, a light coloured dung, a deep coloured water, a ſhort dry cough; a wanting to drink often, with a dulneſs and heavineſs of the whole body, and ſometimes yellow clouds in the eyes.

When this diſtemper is recent, it is not hard to cure; but if it has continued a long time, and there is reaſon to conclude there is an impoſthume in the liver, there can be little hopes of reſtoring the horſe to health. The above ſymptoms ſhew that there is an obſtruction of the biliary duct of the liver, which prevents the gall from flowing into the guts and colouring the dung; when at the ſame time it abounds in the blood, and is partly carried off by the urine, which gives it the dark

colour. This is in all reſpects a true jaundice, and the cough is only ſymptomatical, and therefore for the cure we muſt refer you to the cure of the jaundice.

The *aſthmatic cough*, in which a horſe breathes very quick, with a wheeſing and rattling in his throat, is not incurable, unleſs it has continued long, and the horſe is old. When the diſeaſe is recent, the horſe young, in good caſe, and full of blood, we muſt begin the cure firſt by bleeding plentifully, and repeating it when the lungs ſeem to be very much oppreſſed, or in a violent fit of coughing. Likewiſe the mercurial balls may be given over night, and purged off the next morning as above directed. Or for the purge,

Take of ſuccotrine aloes an ounce; gum amoniac, and gum guaiacum, of each half an ounce; of ſaffron a dram; of oil of anniſeeds thirty drops; of ſyrup of garlick enough to make them into a ball for one doſe.

When the lungs are ſtuft with phlegm, which may be known by his wheeſing, garlick is alone a very uſeful remedy to open the pipes, and it will be proper to give him a head, two or three times a day. The mercurial ball may be repeated about three times, with ſeven or eight days between the repetition of the doſes. On the days of purging he muſt have ſcalded bran with a ſmall feed of corn. In general, he muſt be kept warm, and out of the wet, and his water muſt be milk-warm. Inſtead of the garlick he may have the following balls.

Take the powder of the roots of Florentine orris, elecampane, and liquorice, of each four ounces; gum ammoniac, garlick, and balſam of ſulphur, of each two ounces; of the root of ſquills half an ounce; of oil of anniſeeds an ounce: make them into a paſte for balls with a ſufficient quantity of honey. Each ball muſt be of the ſize of a ſmall pullet's egg.

One of theſe is to be given every morning, letting the horſe faſt two hours before, and two hours after. Theſe medicines muſt be aſſiſted with open air and moderate

moderate exercise, which, if rightly managed, is sufficient alone. That is, it must always be proportion'd to the horse's strength and constitution: it must be continued two or three hours, and the horse must be suffered to go his own pace.

The *nervous asthma*, which is the forerunner of broken wind, is always attended with a dry, husky cough. Horses that are afflicted with this disease seem to be well in all other respects, and go through their business with a good deal of alacrity. But they have fits of coughing, which are very uncertain as to the time of their return, for it will sometimes be a week, a fortnight, or three weeks. This shews that there can be no fault in the original conformation of the heart, lungs, and thorax, as Gibson has erroneously supposed; for then the cause would always exist, and the coughing be incessant. Sometimes change of weather will bring on the cough, or sudden stopping after hard riding. In this disorder the horse has no running at his nose, nor voids phlegm by the mouth; for after the most violent fit, nothing comes from them but a little clear water. They are seldom or never off their stomachs, but are rather voracious feeders, even to the eating of their litter, unless in hot weather, when being kept in a stable, the want of air may hinder their feeding.

When this distemper is so far confirmed, as to become what is properly called a *broken wind*, his inspirations are always more slow than his expirations; for they draw in their breath slowly, and their flanks fill up and rise very gradually, but fall again suddenly, because their breath is forced out through their mouths and nostrils with great rapidity, which shews a convulsive disposition of the parts designed for respiration.

The time when a horse falls into this distemper, is about eight years old, very seldom so much as a year before or after that term. The cough may begin when he is four or five years old, and continue till seven,

and

and when he is coming eight the diſeaſe begins to be very viſible; for the cough is not only very violent, but he heaves and labours with his flanks almoſt without intermiſſion, eſpecially after feeding or drinking. There is likewiſe a continual working of the noſtrils, and a motion of the fundament.

When a horſe has long undergone this diſeaſe, it is no wonder the parts of reſpiration, and thoſe adjacent, ſhould be ſo affected with this continual labouring as to enlarge the heart and other parts; and ſo far Gibſon is in the right. But there is a great deal of difference between the cauſe of a diſeaſe, and the effects which that diſeaſe produces.

A broken-winded horſe is always beſt at graſs, becauſe this always paſſes off without diſtending his belly; whereas hay fills him up in ſuch a manner, that the midriff is more preſt towards the lungs, which hinder their playing, and conſequently muſt exaſperate the diſeaſe.

As a broken-wind ſeldom or never comes on ſuddenly, but by degrees, it will be the beſt way to prevent, if poſſible, its coming to any height. Therefore when a horſe has only a dry obſtinate cough, and feeds greedily at the ſame time, eating his litter and drinking heartily, it will be proper to bleed him in the plate or neck-vein; then the mercurial ball ſhould be given him over night, and purged off next morning; or you may let it remain two days before you purge it off. If you have a mind to give it in a morning, he muſt faſt two hours before and three hours after it; and then give a purge the next morning, or the morning following that. The ſame method may be repeated again in a week or ten days, twice or thrice. On the intermediate days he ſhould have pectorals, which have been found by experience to be very good in theſe caſes.

Take of ſallad oil half a pint; liquorice, elecampane root, bay berries, flour of brimſtone, of each four ounces; anniſeeds,

anniſeeds, tar, and garlick, of each two ounces; of ſaffron half an ounce; of ſugar ſix ounces; of honey four ounces: with a ſufficient quantity of linſeed oil, make them into balls of an ounce and a quarter each.

One of theſe may be given every day, when the mercurials and purging are omitted. They are likewiſe proper to be carried about with you on a journey, or to any place at a diſtance from where you may chance to be.

As this ſort of medicines is only calculated to eaſe the cough, a radical cure cannot be expected from them, and therefore ſomething more powerful muſt be given to take away the cauſe as much as poſſible. Mr. Gibſon looks upon moſaic gold to be a great ſecret for the cure of this diſeaſe. He ſays it is a compoſition of quickſilver, tin, ſal ammoniac, and ſulphur: but he was not chemiſt enough to know that all the quickſilver flies off, and that this medicine may be made without any quickſilver at all. In reality, moſaic gold is nothing but tin divided and rendered of a gold colour by this proceſs. Now the chief uſe of tin in medicine has been to kill worms, and it is very good for this purpoſe when calcined or given in filings; and I have reaſon to believe that this will prove a better medicine for that purpoſe: but how far it is good in this caſe my experience fails me; at the ſame time I am convinced that there may be many virtues in tin that are yet undiſcovered; and it would be great pity to reject a medicine becauſe we are unacquainted how it operates, or becauſe it is given in caſes in which its efficacy was never known before. For theſe reaſons I ſhall give you the medicine juſt as he has ſet it down.

Take of aurum muſivum or moſaic gold eight ounces; myrrh and elecampane in fine powder, of each four ounces; anniſeeds and bayberries, of each two ounces; of ſaffron half an ounce; of oxymell of ſquills enough to make it into balls.

" This

" This, ſays he, is a mercurial preparation, and is " very ſafe, and I have often uſed it with ſucceſs in " obſtinate dry coughs; and it may be given a long " time together without the leaſt danger, that is for a " month or ſix weeks. Each ball ſhould be of the " ſize of a pullet's egg, or a large walnut. It gives " great relief in nervous diſorders."

Hence it appears that Gibſon gave this becauſe he took it to be a mercurial; and this miſtake was very lucky, if it has the virtues which he aſcribes to it. The following balls have often been found efficacious.

Take of cinnabar of antimony ſix ounces; of garlick four ounces; Florentine orris, elecampane root, gum ammoniac, myrrh, and aſſa fœtida, of each two ounces; of ſaffron half an ounce, make them into a paſte for balls with a ſufficient quantity of honey. Each ball muſt be of the ſize of a pullet's egg. Or,

Take of antimony in very fine powder eight ounces; powder of liquorice, elecampane, Florentine orris, myrrh, and aſſa fœtida; of garlick four ounces; of wild valerian root two ounces; of ſaffron an ounce: make theſe into balls with a ſufficient quantity of ſallad oil.

Garlick, as I obſerved before, is very good in theſe caſes, and a head of it may be cut ſmall and mixt with his feed occaſionally, which will afford ſome relief. Some wet the feeds with chamberlye, which if of any efficacy, it muſt be owing to the ſalts, which are of the nature of ſal ammoniac.

When a horſe's wind is quite broken for want of his taking medicines in due time, or for any other reaſon, and falls into a fit in which he can neither eat nor drink for want of breath, he muſt then have as much air as poſſible, by opening the door, window, or any other place by which it may enter in. In this caſe it will be proper to take away three pints of blood, and to repeat it as occaſion requires: but he muſt have no internal medicines till the fit is over, for they would do a great deal more harm than good. Sometimes

this

this fit will laſt ſeveral days; when if he eats any thing at all, it muſt be a little ſcalded bran laid in his manger at night, and a little good hay upon clean litter; for ſometimes he will like to eat the litter with or without the hay. If it be hot weather, he may have two or three quarts of water-gruel in the cool of the morning and the evening, for in the middle of the day they are unable to ſwallow. When they can ſwallow, they may be ſuffered to drink a little and often. In very hot weather it will be proper to take them out of the ſtable to ſome ſhady place, eſpecially in the middle of the day, which will give them a great deal of relief. When the fit is off, they may be taken abroad, and rode a few miles very gently, ſuffering them to go their own pace, and if they want to ſtop to take breath they muſt not be hindered. After this the horſe, with good uſage and proper management, may be able to do a great deal of buſineſs, till another fit returns, which perhaps may not be till the next ſpring or ſummer, and then not ſo violent as at firſt, eſpecially if he is not kept too hot in a ſtable, and not ſuffered to eat ſo much as he would, particularly hay, becauſe that diſtends his belly. But the beſt method is to keep them conſtantly at graſs, and to take them up when you want to uſe them; for though this will not cure them, it will keep them in a tolerable degree of health. But then a horſe that has been at graſs ſome time will always be worſe when taken into the ſtable, ſo that it may be doubted whether a good regular management in the ſtable will not be beſt after all.

Of a CONSUMPTION.

THERE is no part of the body, except the heart, which is of more univerſal uſe for the preſervation of life and health than the lungs. This is the

the bowel in which the nutricious chyle is intimately mixt with the blood, and is assimilated with it. Through this all animals draw in vital breath, which is an elastic fluid that bestows on the heart and the other parts, their strength and their systaltic force. But the greater the usefulness of this bowel is, the more it is exposed to disorders, which may be deduced from its texture.

The lungs consist of membranous vesicles which receive the air; of nerves which contain a very subtil fluid; and of various kinds of vessels which carry the blood and lymph: insomuch that it is no wonder that so many myriads of small vessels should be exposed to the congestion, stagnation, and corruption of the blood; and that various kinds of disorders should arise from thence. Among these is the *phthisis* or consumption of the lungs, of whose origin, progress and cure we are now to speak.

A *consumption* is a wasting away of the body, with a difficulty of breathing, fits of coughing, a slow fever, a gleeting at the nose, which sometimes throws out a yellowish matter, with a frequent sneezing and a quick motion of the flanks. This disease is attended with a dull, moist eye, and generally a heat in the ears and feet. They have little appetite, especially to hay, and when they eat their corn the feverish heat is most evident. These symptoms, or at least most of them, will attend an abscess or corruption of any of the rest of the bowels, in the same manner as the hectic fever in mankind. It is a flattering distemper, and the horse will seem sometimes better, and sometimes worse. Some will have a staring coat, while others have one that is sleek and smooth, according to the different causes from whence the disease proceeds.

The causes of this disease are schirrous tubercles which beset the lungs, and are hard to be removed on account of their constant motion. These tubercles are full of a viscid matter, which are generally the beginning of vomicæ or abscesses of the lungs which

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are contained in a kind of bag. When theſe break, they fill the lungs with a purulent matter mixt with phlegm, and then it is a true conſumption. But theſe tubercles or ſchirrous knots may ſometimes lie dormant a long while, without any other ſymptoms but a dry cough But if theſe ulcerate, at length they turn to fiſtulas and cancerous ulcers, which will admit no cure.

Horſes moſt ſubject to this diſeaſe are ſuch as are hot and fiery, which ſhow a great deal of vigour and activity at their firſt ſetting out, but ſoon flag and are jaded. Such as theſe cannot bear any hard exerciſe or labour without loſing their fleſh, and falling into a kind of a hectic fever, which makes them feel hot all over, and takes them off their ſtomach. A few days reſt will ſet them to rights; but then they will relapſe again with freſh labour, and never be able to endure any hardſhip.

With regard to the prognoſtics, if a horſe retains a tolerable appetite for ſome time, and does not grow weak nor fall away much, there are hopes of his recovery. On the contraty, when his fleſh and ſtrength continue to decay gradually, it is a bad omen, though his appetite ſhould not entirely leave him. When there is a yellowiſh gleet, or a foul coagulated matter diſtils from his noſe, it is a ſign that the lungs are waſted, and then there is no hopes of his recovery. When the horſe is young, and the matter white, which only returns by fits, or when it is clear like water, he may, by proper treatment, be reſtored to health.

As there is always ſome degree of an inflammation attends this diſeaſe, it is generally beſt to begin the cure with bleeding, and this ſhould be but a little at a time, that is, a pint every eight or ten days, while there is any probability of giving relief. Then make rowels in the ſides and breaſt, to draw off the purulent matter from the part affected.

With

With regard to internals, the ſame things will be ſerviceable as are given in colds; but the following balſamic balls excell them all.

Take gum ammoniac ana benjamin, of each half an ounce; of hoglice ſix drams; of ſaffron a dram: make theſe into two balls with a ſufficient quantity of aniſated balſam of ſulphur.

One of theſe may be given in the morning, and the other in the evening, continuing them for ſome time. They may be waſhed down with two or three horns of the pectoral decoction of the ſhops.

There is nothing will contribute more to the cure than good air and gentle exerciſe in a morning; and therefore, if it is convenient, the horſe ſhould be removed from low, boggy places, when he happens to be kept in ſuch. If he is turned out to graſs, it ſhould never be where it is rank, but on ſome dry common, or other place where the air is good. But the beſt paſture is the ſalt marſhes, where a horſe will recover without the uſe of medicines, if his caſe is not deſperate.

A horſe ſometimes loſes his fleſh and wears away without any remarkable cough, running at the noſe, or feveriſh heat, and at length becomes hide-bound. This may be owing to different cauſes: but there is often a ſwelling of the glands of the meſentery, which hinders the diſtribution of the chyle by obſtructing the paſſages of the chyliferous ducts. In this caſe it will be proper to open the obſtructions with mercurials over night, and purges the next morning. Theſe may be repeated three times, with the diſtance of a week between them. In the intervals between the purges, he may have an ounce of cinnabar of antimony, and half an ounce of gum guaiacum, either made into a ball with other ingredients, or mixt with his feeds, being firſt wetted. As the mercurials and purges have been already mentioned, they need not be here repeated. The cinnabar, &c. may be continued

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till the horſe recovers his ſtrength. Sometimes the ſpring graſs will cure them, or rather the ſalt marſhes, eſpecially if they are not too wet and damp.

Of DISORDERS *of the* APPETITE.

MOST diſorders of the ſtomach in horſes proceed from other diſeaſes, and cannot be cured before the diſeaſe on which they depend abates, or is vanquiſhed. Theſe have been already taken notice of in other places. But ſometimes a *weakneſs of appetite* is an original diſtemper. In this caſe the horſe is apt to mangle his hay, or entirely neglect it, which may be owing to too great an indulgence of corn: other horſes neglect their hay through daintineſs, and will eat none but the choiceſt: others again cannot bear hard labour of any kind without a diminution of their appetite for ſeveral days after. Sometimes horſes may be little feeders naturally, and then they will keep their fleſh, which they do not when it is a diſeaſe. When it is owing to a weakneſs of the ſtomach, the dung is ſoft and of a pale colour: this weakneſs may be induced by giving him ſcalded bran too frequently, or any other hot feed.

Theſe horſes may be reſtored to their former appetite by gentle exerciſe in dry weather in the open air, and by keeping them to dry meat, mixing a few beans with their oats. If the horſe is ſo bad as to want medicines, half an ounce of ſuccotrine aloes made into a ball with an ounce of conſerve of roſes, and waſhing it down with a pint and a half of ſmith-forge water; for nothing ſtrengthens the ſtomach and bowels more than the iron wherewith this water is impregnated. The quantity of aloes is juſt ſufficient to cleanſe the ſtomach, and may be repeated two or three days together, unleſs it proves a purge, as in ſome conſtitu-

tions it may, though qualified with the conſerve of roſes. Beſides, as in theſe caſes the horſe's blood is commonly low and poor, theſe things are very proper to warm and enrich it, as they will ſtrengthen the digeſtive faculties on which ſanguification depends.

But when horſes have their appetite diminiſhed by being over fed, which ſometimes happens when they are for ſale, then it will be proper to bleed and purge, and to make rowels in the belly; as alſo by giving them due exerciſe and a clean moderate diet. When horſes are of a hot, fiery diſpoſition, and are apt to fret themſelves off their ſtomachs, they ſhould be ſuffered to run abroad in the winter in the fields, where there is a proper ſhelter from the inclemency of the weather. But in the ſummer they ſhould be taken up in the day time to prevent their being tormented with flies.

A *voracious appetite* renders a horſe a foul feeder, and is generally known by this appellation: and yet to ſpeak more properly, a voracious appetite is when a horſe is more than uſually greedy of his food; whereas a foul feeder will eat his litter, be it ever ſo naſty, foul weeds, ſtinking hay, and even ſometimes mold and wet clay; and therefore this may more properly be called a depraved appetite. Others that are not greedy will, like girls troubled with the green ſickneſs, eat what they can get off the walls that are near them. Now, as this is owing to the dictates of nature in girls, in order to correct the acid juices on the ſtomach, why may not this be nearly the ſame in horſes?

Conſtant exerciſe and daily labour may often cure theſe diſeaſes without any thing elſe; or let them drink water that is mixt with chalk in fine powder, or lime-water; or when it proceeds from ſharp humours in the ſtomach, let him have four hornfuls of a decoction every morning. But there muſt be ingredients enough to make the water ſoft and ſlimy; and four ounces of linſeed oil mixt with a pint of the liquor will make it

have

have a better effect. As for thoſe that eat naſty litter, they ſhould never have it in their power, but ſhould be kept ſweet and clean, always removing it before it becomes ſuitable to his taſte.

The following medicine has been given with ſucceſs when a horſe has loſt his appetite.

Take two ſpoonfuls of the beſt honey; mix it with half a pint of mountain wine, and give it the horſe, for two or three mornings, faſting; then ride him gently after it, for about an hour, and give him water.

Of the CHOLIC *and* GRIPES.

VIOLENT pains in the lower belly may very properly be referred to diſorders of the nervous ſyſtem, which by conſent affect other parts at a diſtance therefrom, and often produce pernicious effects. The ſeat is the whole inteſtinal canal, from the throat to the anus; for when one part is grievouſly affected, all the reſt of that canal may be drawn into conſent; or the inverſions and diſorders of the periſtaltic motion of the guts may be communicated to all the reſt; inſomuch that if the cauſe is very violent, the whole nervous ſyſtem will be grievouſly affected.

When a horſe has the *gripes*, he often lies down and ſprings up ſuddenly, rolls about, tumbles, and turns on his back; he has alſo convulſions and violent ſweats, which are often ſucceeded with cold damps, and are attended with a ſuppreſſion of urine and coſtiveneſs.

The proximate cauſe of all pain is too great a diſtenſion, diſtraction and expanſion of the nervous parts and coats; or a ſtrong ſpaſtic conſtriction or contraction; and from theſe cauſes the pains of the inteſtines proceed. Thus, certain portions of the inteſtines may be diſtended above meaſure by wind pent up therein,

or by a cauſtic, corroſive humour included in the membranes of the inteſtines, and ſo be conſtricted, and the cavity leſſened, with a great degree of pain. Hence ariſes the diſtinction between the wind-cholic or gripes and the ſpaſmodic cholic.

The horſes called crib-biters are moſt ſubject to this cholic; for when they are nibbling the manger they ſuck in a great deal of wind, which ſometimes blows them up, and produces this diſeaſe. In this caſe there is a coſtiveneſs, and almoſt always a ſtrangury; and therefore the ſtrait gut ſhould be emptied with a ſmall hand anointed with oil. This will ſometimes make way for the wind, and then the horſe will ſtale and become more eaſy. It is common for farriers to ſtrike a fleam into the bars of a horſe's mouth, and as it never does any harm, though it is hard to ſay what good it does, the practice may be continued. The following ball has a tendency to eaſe the pain, and to cauſe a paſſage downwards.

Take of Epſom ſalt two ounces; Venice turpentine and juniper berries, of each half an ounce; ſalt of tartar and ſpermaceti, of each two drams; of chymical oil of juniper a dram; of ſolutive ſyrup of roſes enough to make them into a ball, to be given immediately.

As the ſtaling depends upon the emptying of the guts, diuretics can have little or no effect till that be brought about, which this ſeldom or never fails to procure. If the wind and excrements come away, the horſe generally ſtales very plentifully; but if the operation is ſlow, give him another ball two hours after the firſt; and inſtead of Epſom ſalt, put in two ounces of vitriolated tartar. This may be again repeated two hours after, if there is occaſion, which ſeldom or never happens. The horſe ſhould have freſh ſtraw to roll and tumble upon.

After the pain is removed, which may be known by the horſe's lying quiet, gathering up his legs without ſtarting or tumbling; and if he continues an hour in

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that poſture, all the danger is over. While he is in the fit he ſhould be carefully attended, to prevent his doing himſelf any harm. After this, he may feed upon ſcalded bran, and drink warm water-gruel.

Mr. Gibſon, inſtead of Epſom ſalt, orders an ounce of ſal prunella; but this is not ſo good, for the reaſon already given, as well as from the experience of its effects. The common method of giving oil of turpentine, gin, pepper, &c. is very pernicious, for they are not only very heating, but, though deſigned to promote urine, cannot have ſuch an effect at this time, and may bring on an *atonia* or weakneſs of the parts deſtined to make that ſecretion.

When the ball cannot be given whole, on account of the agitation of the horſe, it may be diſſolved in a pint of warm ale, and given as a drench; but then care muſt be taken to reduce the juniper berries to a powder before the ball is made.

The *ſpaſmodic cholic*, or *dry gripes*, as ſome call it, is always attended with coſtiveneſs, and the dung that comes away is black and hard; his urine is high-coloured, and he has a quick motion with his tail; his looks are dull, and his motions are ſluggiſh. This, if taken in time, is eaſily remedied by emollients, and by giving a laxative conſiſting of two ounces of vitriolated tartar, diſſolved in a ſufficient quantity of water, and given him in a horn. A cholic ariſing from drinking cold water when the horſe is hot, may be cured by giving a cordial ball or two.

But the diſeaſe that is moſt dangerous, and which is often miſtaken for the cholick, is ſome inward inflammation, particularly of the guts, which is ſeldom found out till it is too late. As for the inflammation of the lungs, it may be known by the breath; and the inflammation of the liver by the ſymptoms of the jaundice or yellows. But an inflammation of any part of the guts has nothing particular to diſtinguiſh it from the dry gripes. This, for want of a timely aſſiſtance,

generally terminates in a mortification; and then if any dung comes away, it is black, which is a ſign that the horſe is paſt recovery,

The way to prevent theſe fatal accidents, is always to be upon the watch when the horſe has any ſymptoms of the gripes, and if he is coſtive, which is always the caſe in this inflammation, his body ſhould be opened as ſoon as poſſible; not by purgatives which exaſperate the diſeaſe, but by ſuch things as will correct and diſcuſs the offending humour, and carry it downward. Therefore the firſt thing to be done is to empty the ſtrait gut by a ſmall hand, and afterwards give an emollient oily clyſter. Soon after this give the following ball.

Take of vitriolated tartar two ounces and a half; of ſalt of tartar three quarters of an ounce: make theſe into a ball with a ſufficient quantity of lenitive electuary.

If this does not produce an immediate effect, let it be repeated in two or three hours: the ſecond or third doſe ſeldom or never fails. But it muſt be remembered that theſe internal inflammations are always attended with a feveriſh heat; and therefore if you lay your hand upon the horſe's ſide, and find the heart beat more than forty times in a minute, you may find by the exceſs the height of the fever. Therefore when you find this runs high, and his water is ſcalding hot, you muſt never omit plentiful bleeding, to ſtop the progreſs of the inflammation as ſoon as poſſible. If the horſe is in ſuch pain that you cannot give him the remedy in the form of a ball, it may preſently be diſſolved in water, and forced down as a drench.

When a horſe has the ſymptoms of the gripes, with a looſeneſs, and the dung has its natural colour, there is never any danger; but when it is blackiſh and ſtinking, the bowels are already mortified, and then all help will come too late; ſo that if you give him any remedies it will be to no manner of purpoſe.

When this looſeneſs continues long, then

Take

Take of diaſcordium an ounce; roots of round birthwort, gentian, bay-berries, and myrrh, of each a quarter of an ounce; make them into a ball with a ſufficient quantity of oil of amber.

This may be repeated every four hours till the horſe recovers. Gibſon in the beginning of a mortification adviſes tincture of myrrh and Egyptian honey. This mixture indeed would be proper in outward applications, but to ſuppoſe it would reach the aggrieved part by giving it inwardly, is little leſs than madneſs, not to mention the deleterious quality of the verdigreaſe wherewith the Egyptian honey is made. But though he recommends this, he owns he never tried it himſelf; and I hope no one ever will, eſpecially while there remains any hopes of recovery; for what is done afterwards when the horſe is dying is of little or no ſignification.

Of WORMS.

WORMS are living animals, of various forms, ſtructure, and magnitude, which proceed from the eggs of inſects taken into the ſtomach with the food, and are bred in the cavities of the inteſtines, and are nouriſhed by corrupt juices. They produce various ſymptoms, and diſturb all the animal functions.

Theſe worms are of three kinds; *bots*, the *teretes* or round worms, and the *aſcarides*.

Bots are bred in the ſtomach, and reſemble woodlice, only they are rounder, and have ſharp, ſmall, prickly feet along the ſides of their belly, by which they adhere cloſely to the part where they are bred: thoſe in the ſtomach are red, but thoſe which ſkulk in the ſtrait gut are white. The firſt of theſe often occaſion terrible ſymptoms, and throw the horſe into con-

vulſiuns. Dr. *Bracken*, who retains the exploded doctrine of trituration or grinding of the ſtomach for the performance of digeſtion, denies there can be any worms in that part. He does not deny but that worms are found in the ſtomach after a horſe is dead, but then he affirms they creep there, after the grinding power of the ſtomach ceaſes. He likewiſe owns that worms have been voided by the mouth and noſtrils of the human ſpecies; but then he ſuppoſes they run away upwards or downwards, as they can, to avoid being cruſht to death: he likewiſe adds, that worms that have been vomited up have never been very lively. If this reaſon is of any weight, I can contradict it from experience; for I once ſaw a worm crawl through the noſtrils of a woman, that was ſeveral inches long, and as lively as any earth-worm could be. But let that be as it will, he would now be accounted but a poor philoſopher, who ſhould aſſert, that digeſtion is performed in the manner this gentleman mentions. It is now allowed by all able phyſicians, that the ſolution of aliments in the ſtomach is performed by heat and a menſtruum. This laſt is principally the ſaliva which mixes with the food in chewing, and being of a fermentiſcible nature, diſſolves that part of the aliment that is moſt fit for nouriſhment, or at leaſt extracts their fineſt parts, or ſuch as are moſt proper to enter the lacteal veſſels. Beſides we find many ſubſtances that we ſwallow which are not triturated, or ground to powder. Thus, if you ſwallow a bit of boiled carrot without chewing, a nut-kernel, or an almond, you will find them come away with very little alteration; which ſhews that the force of the ſtomach is merely imaginary. Nor can it be reaſonably aſſerted, that this power in horſes is greater than in men, becauſe the coats of the ſtomach are thinner in horſes than in men. Add to this the experience of every groom, who often find oats come away from horſes,

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that have been ſwallowed whole, with very little ſeeming alteration. But to return to my ſubject.

The *teretes* or round worms are like earthworms, and are of the ſame kind as thoſe that are commonly voided by children; only they are ſharper at their ends than earth-worms, and are more callus in the middle. With theſe ſharp ends they prick and corrode the guts, and ſometimes make their way into the cavity of the abdomen; at leaſt they devour ſo much of the beſt juices of the ailment, that the horſe ſeldom thrives till they are diſlodged. In children they ſeldom exceed the length of a ſpan, but in horſes they are often eighteen inches long, and as thick as a finger.

The third ſort are the *aſcarides*, which are ſmall and ſlender, like needles, and are chiefly found in the ſmall inteſtines, which they gnaw and vellicate, and often come away in large quantities with excrements.

There is a fourth kind of worm, called the tape worm, which has not been taken notice of by authors as afflicting horſes; yet as it has been found in the bodies of moſt other animals, there is little doubt to be made, but it is ſometimes in horſes. This runs all the length of guts, and has been found in men to be forty feet long.

Among other cauſes, it is certain that the food of horſes is moſt likely to contribute to the generation of worms; for as they eat many kinds of graſs and herbage, wherein the eggs of theſe animals may abound, it is no wonder they ſhould be conveyed into the ſtomach and guts by theſe means. The bots are found in horſes in the months of May and June, and continue to afflict them for a fortnight or three weeks, and then diſappear. The round worms and aſcarides infect horſes at all times of the year.

Bots are viſible to the naked eye, if the ſtrait gut is examined, to which they ſtick, and are often thruſt out with the dung, along with a yellowiſh matter like melted brimſtone. Theſe only make a horſe uneaſy,

by

by cauſing a tickling, as in men; for which reaſon he often rubs his backſide againſt a poſt. But thoſe that take up their reſidence in the ſtomach have quite different effects, which appear all on a ſudden, and throw a horſe into convulſions, with violent agonies. The round worms give ſo little diſturbance, that they are hard to be diſcovered, unleſs by his voiding one or two now and then. Sometimes great numbers will come away together, when they are very ſmall, and have but little time to grow.

Aſcarides may be ſoon found out, becauſe they are often voided with the dung; and they make a horſe look lean and jaded, his hair ſtares, he often ſtrikes his hind feet againſt his belly, but without the ſymptoms of the cholic; for if he ſquats down on his belly, he remains very quiet for a little while, and then gets up and feeds, without attempting to roll or tumble.

The cure of bots in the ſtrait gut is very eaſy, becauſe you need do nothing more than give him ſavine chopt very ſmall along with chopt garlick, twice a day, with moiſtened oats or bran. The doſe for one time is a ſpoonful of ſavine and four cloves of garlick. But if a horſe is turned into a good paſture at that time, even this trouble may be ſaved.

When there are bots in the ſtomach, no time is to be loſt; becauſe, when the convulſions have ſhut up the horſe's mouth, he cannot be brought to ſwallow any thing. Therefore give him two drams of mercurius dulcis in conſerve of roſes, or in water and flour made into a paſte, as being neareſt at hand; becauſe fetching any thing that cauſes a delay may be of dangerous conſequence. It may be waſhed down with a hornful of warm water. There can be little doubt of the nature of the convulſions, if it be conſidered that this diſtemper always appears at one particular time of the year, viz. in May or June.

If

If this medicine procures a truce, you may give him three or four hornfuls of the following decoction three or four times a day.

Take ſavine, garlick, and valerian root, of each two ounces; of camomile flowers an ounce; of ſaffron two drams: boil theſe a little in four quarts of water, and then ſtrain off the liquor. When it is cool, add two ounces of the fetid tincture, which is the ſame as tincture of aſſa fætida, and two ounces of the tincture of caſtor; mix them. Shake the veſſel every time you give any to the horſe.

As theſe convulſions proceed from worms, the ſpeedieſt method of cure is by deſtroying the cauſe, which is to be done only by anthelmintics, or worm deſtroying medicines; though in regard to the ſymptoms I have mixt cephalics therewith; inſomuch that the virtues of both being united, we may hope for the better ſucceſs. *Gibſon*, inſtead of the above, adviſes pennyroyal and rue, and half an ounce of caſtor and aſſa fœtida to be tied up in a rag, and then hot water to be poured upon the ingredients. Now, what great virtues can be drawn from theſe, which are the principal cephalics, every apothecary's apprentice is able to determine: therefore what I have preſcribed is a much better and more efficacious medicine. Theſe tinctures may be made by putting half an ounce of caſtor in powder, or well bruiſed, into half a pint of common brandy, and an ounce of aſſa fœtida to half a pint of ſpirits of wine, and letting them ſtand by the fire ſide, and they will be fit for uſe in a few days time. It will not be amiſs likewiſe to obſerve, that *Gibſon* preſcribes handfuls, which is a very indeterminate quantity, and ought to be baniſhed out of every receipt where the virtues of the herb ſo preſcribed are to be depended upon.

Round worms, though they produce no violent ſymptoms, yet they prey, as it were, upon the vitals of the horſe, and render him diſpirited and inactive.

active. To diſlodge theſe, bitters are of great uſe; and aloes given to an ounce and a half, with a dram of the oil of ſavine, will be ſufficient for this purpoſe. This likewiſe will be ſufficiently purgative, without the addition of jalap, which *Gibſon* directs. If this ſhould fail, we muſt have recourſe to the preparation of tin; and as the moſaic gold is only tin reduced to a powder, and a little coloured, nothing can be more proper. Therefore, half an ounce of moſaic gold, and half an ounce of myrrh, made up into a ball, and given twice a day, will ſoon deſtroy theſe troubleſome animals. When any come away, it is a ſign they are all killed; and then the horſe may take two or three aloetic balls to carry them out of the body.

The aſcarides are not ſeated in the ſtrait gut, like thoſe in the human body, but ſeem to be lodged in the ſmall guts, near the ſtomach, and devour the moſt nouriſhing part of the aliments. They often cauſe the horſe to fall into ſick fits, of no long duration; after which he eats his meat as heartily as before. However, they cauſe the horſe to grow lean, and look as if he was ſurfeited; his mouth appears whiter than uſual, and ſmells offenſively.

The worms may be diſlodged with moſaic gold abovementioned; or with two drams of mercurius dulcis, made into a ball with an ounce of conſerve of wormwood, and as much powder of myrrh as will make it ſtiff enough for a ball. It muſt be given in a morning, and the horſe muſt faſt three or four hours before and after the taking it. The next morning he muſt have an aloetic ball to purge it off. Theſe may be repeated two or three times more, with the interval of ſeven or eight days between.

There are other ways of giving mercury or quickſilver, which will anſwer the ſame end. Thus you may mix half an ounce of æthiops mineral, with a ſufficient quantity of extract of ſavine to make it into a ball. If you mix the æthiops mineral with a dram of

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the oil of ſavine, and an ounce of ſuccotrine aloes, and make them into a ball with ſolutive ſyrup of roſes, then there will be no need of a purge the following day. Or you may kill two drams of quickſilver with half an ounce of Venice turpentine, rubbing them together till the globules of the quickſilver diſappear, and then mix them with the aloes and the oil of ſavine as before. But the doſe muſt be repeated but ſeldom with any of the compoſitions of mercury or quickſilver, for fear of a ſalivation, which a horſe is more ſubject to than a man.

All metallic ſubſtances that may be taken inwardly, ſeem very proper to kill the worms; for we know by experience, that iron will do the ſame as tin and mercury; and it has been uſual to give an ounce of the filings of iron every day, with wetted bran for this purpoſe. For the ſame reaſon ſmiths forge water is a very proper drink. But as for lead and copper, or any of their preparations, they ſhould never be given inwardly upon any account. There have been preparations of gold, which have been highly recommended for various diſeaſes; but the dearneſs of that metal renders all the enquiries into the propriety of the encomiums entirely unneceſſary.

Gibſon ſeems to reject the powder of tin, for no other reaſon than the difficulty of making it; but I have obviated that objection, by ſubſtituting moſaiac gold in its room; and where that is not to be had, half an ounce of the filings of tin will anſwer the ſame purpoſe. Some give equal parts of crude antimony and brimſtone, morning and night, and others the ſame quantity of equal parts of cinnabar of antimony and guaiacum; but nothing can be better than what is already recommended. I have purpoſely avoided mentioning any ſtrong purges which ſome adviſe, becauſe they always do more harm than good, except in ſome particular caſes. When the horſe has a weak ſtomach, a quart of ſmith's forge water is very good,

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but it may be mended with camomile-flowers, wormwood, orange-peel, the leſſer centaury, and other bitter herbs, allowing about four ounces to three pints of water, and letting them boil for a ſhort time. Some recommend two ounces of Æthiops mineral mixt with the ſame quantity of powder of anniſeeds, and made into a ball with a ſpoonful of honey.

Of COSTIVENESS, *a* LAX, *and* SCOURING.

THE excrements or dung is chiefly the remainder of the aliment, when the chyle is extracted from it as it paſſes through the guts; I ſay chiefly, becauſe it contains ſome part of the other juices which it receives in paſſing through the inteſtinal canal, ſuch as the groſſer parts of the bile or gall, which it receives from the liver. The remainder of the pancreatic juice which it receives from the ſweet-bread or pancreas, and a fluid which proceeds from the glandulous coats of the inteſtines. All theſe excrements are carried out of the body, to keep the blood and humours free from filth, and preſerve them in that temperate diſpoſition which is neceſſary for life and health.

This excretion is not only neceſſary for the purpoſes above mentioned, but for the ſolution and termination of thoſe diſeaſes, which never go off without an evacuation. And therefore an enquiry into its nature, is not only neceſſary for the ſound, but for the morbid or diſeaſed ſtate of the body; to aſſiſt us in our judgment concerning both. By this means we ſhall be able to diſcern the ſtate of digeſtion, the elaboration of the chyle, the ſecretion and excretion of the gall, the ſtrength of the periſtaltic motion of the guts, and the conſtitution of the nervous ſyſtem.

Thus when the dung is much paler than ordinary,

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it ſhews the bile or gall is not duly ſecreted by the liver, and that there is a want of it in the inteſtines. This want may ariſe from an obſtruction of biliferous ducts, or from their conſtriction, as in the yellows or jaundice; or the colour of the gall may be changed by too great a quantity of ſour or acid humours abounding in the firſt paſſages. Now as the gall ſerves to ſtimulate the guts to an excretion, this may be the occaſion of coſtiveneſs and griping pains.

Likewiſe when the dung is hard and dry, high coloured, and comes away in little balls, it ſhows the gall is ſecreted in too great a plenty; and this happens more frequently in the ſummer than the winter, if the horſe is kept in the ſtable. The ſtrong ſmell of the excrements is likewiſe owing to the gall, for the paler they are the leſs is their ſmell; and when they happen to ſtink it is a ſign of the mortification of ſome part of the inteſtines. When the excrements are mixt with a thick ſlime of a weak digeſtion, and when the quantity is larger than common, and thin, with a good appetite, at the ſame time that the body waſtes away, it ſhews the villous coat of the guts is ſmeared with a ſlimy matter, which will let nothing paſs but the thin watry part of the chyle, while the gelatinous and nouriſhing part is excluded and comes away with the dung. But when it comes away in ſmall round bits, and very hard, it is a ſign of the obſtruction of the mucous glands of the guts, or a great heat therein, and that the periſtaltic motion is too languid.

In general when the dung is voided in a regular manner, it is a ſign of health, and when it is diſturbed or irregular, it ſhows a diſordered ſtate of the body. In all diſeaſes of the head and nerves there is a coſtiveneſs, ſuch as pains in the head, the epilepſy, the palſy, the vertigo, and convulſions. A coſtiveneſs likewiſe is often the forerunner of fevers, and an attendant thereon. Likewiſe in moſt chronic diſtempers, the

belly

belly is ſlower than ordinary, which ſhews how much the proceſs of this ſecretion ought to be attended to.

Coſtiveneſs in horſes is more frequent in hot weather, from an increaſed perſpiration, from being kept to hard dry meat, or from want of air and exerciſe. Sometimes it becomes habitual, and then the horſe never enjoys full health, but grows lean, with a feveriſh heat and a ſtaring coat.

When the heat of the weather occaſions this diſorder, an opening diet with ſcalded bran will effect a cure, as well as in the other two caſes, at moſt he needs nothing more than from two to four ounces of Epſom ſalt, diſſolved in water. But when it is become conſtitutional, it is not ſo eaſy to be removed. It may happen, though very rarely, that a ſlow belly may be no diſeaſe, but rather a ſign of ſtrength and a good digeſtion; and then we have nothing to do but prevent its increaſe, with now and then an opening diet. But when it produces the ſymptoms above-mentioned, we muſt have recourſe to a conſtant opening diet, together with emollients. The beſt opener is ſcalded barley, and he ſhould have the water that it was ſcalded with to drink. All ſtrong purges are as bad as poiſon, and therefore muſt be carefully avoided. The horſe muſt have ſuch laxatives only that produce their effect without raiſing any commotion in the blood. Among this I know of nothing more ſafe or certain than Epſom ſalt. Four ounces may be diſſolved in a pint of water and given him for a doſe; but this may be either encreaſed or diminiſhed according to its operation, and according as you would have it purge either more or leſs. Fenugreek ſeeds and linſeed, on account of their oily mucilaginous quality, are very proper to render the guts ſlippery, and by that means to make his dunging regular. He ſhould have an ounce every day mixt with his feed. Or you may mix it with half an ounce of the beſt aloes, and as much ſpermacetti, made up into a ball with honey. But this

muſt

muſt be repeated but ſeldom; that is, once in four or five days.

When the body of a horſe is uncommonly open and he dungs like a cow, he is then ſaid to have a *Lax*, or when he has a purging for a few days only. But when it continues he is then ſaid to have a *Scouring*. This may proceed from various cauſes, as from a ſudden ſtoppage of perſpiration, from a ravenous feeding, from hard riding or violent exerciſe, and then there is a diſcharge of ſlime or greaſy matter; or from worms. Sometimes it is the conſequence of other diſeaſes, and ſometimes it is a critical diſcharge of noxious humours.

With regard to the prognoſticks, when it proceeds from a ſudden ſtoppage of perſpiration, commonly called a cold, it is never dangerous; nor yet when it is the effect of voracious feeding. The ſame may be ſaid of that which ſucceeds hard labour. When ſcouring is habitual, it may go off as the horſe advances in years, that is when he arrives at ſeven or eight. That which ſucceeds or attends other diſceaſes, cannot be judged of without enquiring into the nature of the diſeaſe itſelf. Beſides it may ſometimes be critical, and then it will carry off the diſeaſe it accompanies. When a looſeneſs is ſpontaneous, and comes on without any previous evident cauſe, it is critical, and generally tends to preſerve health and prevent diſeaſes. And when it is from worms, the only way to cure it is to remove the cauſe.

In the cure we muſt conſider the cauſe of the diſeaſe, and the ſtate of the horſe's body. A ſcouring that happens from a ſudden ſtoppage of perſpiration or hard labour, when the horſe is full of blood and humours, it ſhould rather be encouraged than ſuppreſſed; and therefore he ſhould have an open diet, and warm water gruel. Then reduce half an ounce of rhubarb, and two drams of Virginian ſnake-root into a powder, and mix them with a pint of warm ale for a drench.

If a great deal of ſlimy matter is voided, then a more powerful laxative muſt be given.

Take of lenitive electuary, four ounces; of Epſom ſalt, two ounces; of gum guaiacum, half an ounce: grind the gum and the ſalt together, and then mix them with the electuary. This done, pour in four ounces of linſeed oil, freſh drawn over them: and incorporate them together. Afterwards, add a pint of warm ale by a little and little, ſo as to make a uniform mixture, and then give it the horſe as a drench.

This may be repeated twice more every other day, if there ſhould be occaſion. When the ſlime is come away, the horſe will immediately return to his appetite. Sometimes after the horſe has recovered his ſtomach, the dung will have a mixture of greaſe, or be covered with a thin greaſy ſkin, in which caſe it will be proper to give the following alterative ball:

Take ſuccotrine aloes and bay-berries, of each half an ounce; Virginian ſnake-root and gum guaiacum, of each a quarter of an ounce; of ſaffron a dram; of oil of amber, a ſpoonful: make theſe into a ball with common treacle.

This being given the horſe twice a week, will compleat the cure without any thing elſe; by bringing away all the glutinous matter which lurked in his guts.

When a looſeneſs is attended with a fever, it muſt neither be encouraged, nor ſtopt, but ſomething muſt be given that will ſtrengthen the paſſages, without locking up the offending matter. For this purpoſe there is nothing better than rhubarb.

Take of good rhubarb, in fine powder, half an ounce; of Virginian ſnake-root a quarter of an ounce; cinnamon and ſaffron, of each a dram. Make theſe into a ball, with a ſufficient quantity of lenitive electuary.

This will operate a little, and the night after let the horſe have the following decoction given as a drench.

Take

Take of logwood three ounces; of water, a quart: boil them to a pint, and towards the end add two drams of cinnamon.

The rhubarb ball may be repeated once in three days, and the drench every day, if the fever and purging do not abate. Some, inſtead of the former drench, give half an ounce of diaſcordium in a pint of red wine; but the logwood is a ſafer and a better medicine.

When theſe things have not the deſired effect, and the horſe has no appetite, but looks full in the belly, with diſtended flanks, the logwood drink or the diaſcordium may be given morning and night; and their aſtringent virtue may be aſſiſted with a clyſter.

Take of pomegranate rind, two ounces; camomile flowers and red roſes, of each half an ounce: boil them in two quarts of water to one; then ſtrain off the decoction and diſſolve in it Venice treacle and diaſcordium, of each an ounce, to be injected immediately, and repeated once a day till the diſeaſe abates. N. B. It muſt always be injected warm.

When the flux is exceeding violent, and the horſe ſeems to be in immediate danger, we may have recourſe to opiates.

Take of Venice treacle, or diaſcordium, half an ounce, or an ounce; of liquid laudanum, a dram; ſmall and ſtrong cinnamon water of each a quarter of a pint, and mix them for a doſe.

The chief danger in theſe ſorts of looſeneſſes, which are attended with pain, is their turning to a mortification; and therefore the uſe of aſtringents is warranted, to prevent it as ſoon as poſſible; but it would be better if it could be done without. There is a medicine lately diſcovered, which has a wonderful virtue in curing the worſt of fluxes in men; and that is the cerated glaſs of antimony. Now, conſidering how agreeable all antimonials are to the conſtitution of horſes, there can be no manner of danger in making

the experiment. Two drams would be a ſufficient doſe. It may be given every day for two or three times; but if the operation be violent, which can hardly be the caſe, there muſt be a day between each doſe. I muſt confeſs, I never have tried it yet, but we may reaſon from analogy, there is little doubt to be made of its good effects. But it muſt be remembred, that he is to have no liquid till three hours after it has been given him. It may be mixt with a little of the cordial ball, for the ſake of his ſwallowing it eaſily.

When the horſe by any of theſe means is pretty well recovered, and begins to return to his appetite, he ſhould not be fed freely at firſt, but ſhould have a little at a time, and often. The ſame may be ſaid of his water, and if the weather be cold, it ſhould be a little warmed. Beſides, if he has now and then a cordial ball, he will recover his ſtrength and ſpirits the ſooner.

Some young horſes of a weak conſtitution are often ſubject to ſcouring, without any manifeſt cauſe, or without any great ſickneſs. This will ſometimes require ſtrengtheners, or aſtringents, as the ſymptoms ſhall appear more or leſs violent. Horſes of a hot fiery temper have often the weakeſt digeſtion, and will ſcour after the leaſt exerciſe. But the reaſon given by *Gibſon* to ſupport it, viz. that their oats come away whole in their dung, is abſurd; for when they are ſwallowed whole, they will always do ſo, notwithſtanding the ſuppoſed grinding faculty of the ſtomach. Oats coming away whole, is only a ſign that the horſe eat them greedily, or did not give himſelf the trouble to chew them; for the ſtomach has no ſuch power of grinding the aliment as hath been attributed to it. This was obſerved before; to which I ſhall add an experiment, eaſy to be made, that may convince any one, which is, that if you mix oats with paſte, and cauſe the horſe

to

to ſwallow it, thoſe oats will always come away whole, though the horſe has never ſo good a digeſtion.

The abſolute cure of ſuch horſes as theſe muſt be the effect of time, joined to a due regulation of their diet, never ſuffering them to eat voraciouſly, but keeping them within due bounds, both as to the quantity and quality of their meat and water, letting them have but a little at a time of each. Now and then their way of living may be varied, with the addition of beans, peaſe and tares.

When this ſcouring of young horſes is obſtinate and runs into exceſs, the ſame aſtringents may be given as in a common looſeneſs; ſuch as logwood, diaſcordium, and Venice treacle. But here obſerve, that I do not take Venice treacle to be an aſtringent properly ſo called, but only as it tends to ſend the humours thro' the ſkin by perſpiration, and as by the quantity of opium it contains, it abates the periſtaltic motion of the guts. Therefore ſometimes what many authors attribute to weakneſs, may only be the effects of too lively a motion; and this accounts for hot fiery horſes being very liable to this diſorder. Sometimes this diſorder may proceed from an obſtruction of the mouths of the lacteal veſſels by ſlimy matter, and then a ſummer's graſs, or the ſalt marſhes, will remedy this diſorder, becauſe graſs commonly occaſions a purging at firſt, which will carry off the contents of the ſtomach and guts, and thoroughly cleanſe them; after which chylyfication will be performed in a regular manner.

The purging that attends horſes that have been long ſurfeited, if their appetite remains good, ſhould always be left to nature, for in time it will go off gradually, all remains of the diſeaſe will vaniſh, and they will recover their fleſh to a wonder. But if they have a bad appetite, the beſt way will be, to turn them out to graſs in the day, and to take them home in the evening, unleſs the nights are warm.

When horſes have a great purging after violent diſeaſes, which impairs their ſtrength and wears them away, you may conclude it is owing to ſome inward decay, which will admit of no remedy; juſt like a colliquative diarrhæa in men in the laſt ſtage of a conſumption, which is always a ſign of approaching diſſolution. In this caſe, it is of little conſequence, whether the ſeat of this diſorder is in the lungs or liver, or any other *viſcus*, becauſe the naſty ſtinking ſlime which comes away with their dung, is nothing elſe but the matter of an impoſthume out of the reach of medicine.

Of the JAUNDICE, *or* YELLOWS,

THE diagnoſtic ſigns of the jaundice are coſtiveneſs, a duſky yellowneſs of the eyes, and all the internal parts of the mouth. This is attended with ſluggiſhneſs and want of appetite, hard dry dung of a pale yellow, or a light pale green; dark dirty ſaffron coloured urine, which on the ground, looks as red as blood. If he has a fever along with theſe ſymptoms, and they continue to increaſe, the horſe will ſoon grow frantic, it being a ſign of the inflammation of the liver. When the diſtemper is chronic or continues a long while, the horſe will be dull, heavy, and inactive, with a ſurfeited look, and will be often turning ſhort and looking to the near ſide, with a twiſting of his body. The off-ſide of his belly will feel hard and ſomewhat diſtended from the ſwelling of the liver.

The jaundice is either *idiopathic* or *ſymptomatic*; the ſeat of the firſt is in the liver, and the ſecond may ſupervene to ſome other diſeaſe; or it may be critical when a fever is declining, and then the horſe ſoon recovers

recovers his appetite, begins to look lively, the fever ceaſes, and the yellowneſs ſoon wears off.

The cauſe of the *idiopathic jaundice* is always ſeated in the liver. This is a noble *viſcus*, which is ſupplied with a great variety of veſſels, in order for the ſecretion of the ſaponaceous fluid called the bile. This proceeds from the maſs of the blood and humours, and is carried by a peculiar canal into the ſmall gut near the ſtomach, for the promoting digeſtion. Hence we may eaſily conceive that when its courſe is ſtopt, either wholly or in part, it muſt regurgitate into the lymphatic veſſels and the blood, and become the proximate and principal cauſe of the jaundice; and when the ſerum and nutricious juice, are by this means mixed with the bile or gall, it is eaſy to explain why the parts free of air have a yellow appearance, and that the urine ſhould be tinged with a reddiſh ſaffron colour. Hence too the reaſon will appear, why the dung is of a pale yellow or green, there being no mixture of the gall with it, and the appetite and the power of digeſtion become weak and languid.

This diſorder of the biliary duct, may either be from ſome obſtructing matter, or from a ſpaſm which conſtringes its capacity; and will not give admiſſion to the gall. That the jaundice may be owing to ſpaſms, appears from hence, that ſometimes the jaundice will come on, and then diſappear again in a ſhort time, which cannot be owing to any peccant matter obſtructing and ſtuffing the biliary veſſel and ducts, becauſe it ſoon vaniſhes without any viſible reaſon. But that which is moſt uſual is from the obſtruction of the canal by ſome matter that plugs it up, and the ſofter this is, the milder are the ſymptoms which attend it. In men this paſſage is often obſtructed by ſtones bred in this duct, but we have no experience that horſes are ſo affected, which may be owing to their having no gall-bladder. Or the jaundice may be occaſioned by the obſtruction of the ſmall ducts, by

which the bile is ſecreted; for this will occaſion the bile to return back into the lymphatic veſſels, by which it will be carried into the maſs of blood.

The mediate cauſe of the jaundice may be a plethora, or a foulneſs of blood and humours: for this will occaſion a more languid circulation of the blood thro' the *vena portæ*; becauſe in this ſtate of the body the blood will become more thick and viſcid, and will more readily ſtagnate in the ſmall veſſels. Therefore, when from this cauſe there is a ſchirrus, or induration of the liver, the ſecretion of the gall will be defective, and the ſigns of the jaundice will appear. Another mediate cauſe will be foul feeding, whereby bad blood will be generated, which will be particularly thick and impure.

With regard to the *prognoſtics*, when the horſe is young and full of blood, the conſequence of high feeding, and want of ſufficient exerciſe, the cure will not be difficult. But if it ſucceeds hard labour, which has hurt the liver by an abſceſs or otherwiſe, the cure will be exceeding difficult. When the liver is ſchirrous, which may be concluded by the ſwelling of the off-ſide of the belly, about the region of the liver; the horſe may linger a great while before it kills him, but he will grow weaker and weaker till he entirely becomes unfit for buſineſs. But if he retains his ſtrength and vigour, without ſickneſs or loſs of appetite, there will be no danger of recovery by proper means. When a jaundice is attended with an inflammation of the liver, if taken in time, it will give way to medicines.

In the cure, we ought firſt of all to examine whether he has a fever, and the degree of it, that we may judge whether the liver be inflamed or not. If it is, we are to begin with bleeding, and repeat it occaſionally as long as the ſymptoms render it neceſſary, and as ſoon as poſſible we muſt rub the bliſtering ointment into the ſide all about the region of the liver. Theſe

things

things alone will remove the inflammation, when they are adminiſtered in time. If any thing more is wanting, it muſt be laxative clyſters to bring away the fæces, for this diſeaſe is always attended with coſtiveneſs.

And here I cannot help animadverting on Mr. *Gibſon*, who is well ſkilled in farriery, and has given more light into the diſeaſes of horſes, than any one man before him; and therefore I do not do it to injure his reputation. Mr. *Gibſon*, I ſay, makes coſtiveneſs one of the cauſes of the jaundice, which is certainly always a conſtant effect. The coſtiveneſs may indeed precede the yellowneſs of the eyes and mouth; for as ſoon as ever the obſtruction is formed, and the gall is not poured out into the gut as uſual, a coſtiveneſs will naturally enſue; becauſe, as I have elſewhere obſerved, the gall is a ſort of natural purge, and ſtimulates the guts to the excluſion of the dung. Therefore as the yellowneſs cannot appear till the gall regurgitates into the blood; and this being the conſequence of the obſtruction, it is no wonder that coſtiveneſs ſhould be the firſt ſymptom, though we can conclude nothing from it till the yellowneſs of the eyes appears, becauſe it may riſe from various other cauſes. And yet if we were carefully to attend to the colour of the dung, I make no doubt, but we might perceive the jaundice coming on before any other ſymptom of this diſeaſe is viſible in any other part: for as the gall gives that tincture or colour that is natural to the dung, when that is wanting it muſt become pale more or leſs according to the diet that he feeds upon.

When the fever is gone off, if the jaundice ſtill remains from the obſtruction of the bilious duct, nothing can be more proper that Spaniſh ſoap to diſſolve the viſcid matter which plugs up the canal; when this is joined to a laxative it may be the more likely to

produce

produce a good effect, and therefore it may be prescribed thus:

Take ſuccotrine aloes, rhubarb and Alicant ſoap, of each half an ounce; of honey enough to make them into a ball, to be taken in the morning faſting.

This may be waſhed down with half a pint of the following decoction:

Take parſley root, madder, turmeric and burdock root; of each two ounces; boil them in three quarts of water to two quarts; ſtrain the liquor off and ſweeten it with honey.

At night he ſhould have half an ounce of the ſoap alone, and a pint of the drench, which may be continued for three or four days, and then the ball may be repeated; and ſo alternately till the diſeaſe is conquered. *Gibſon* orders his ingredients to be boiled in ſmith's forge water, but this is improper; for if chalybeats are given too ſoon, they will bring on a ſchirrous of the liver, and then the diſeaſe will be incurable; therefore the forge-water ſhould be poſtponed till the diſeaſe is going off. Or inſtead of the ſoap alone, the following ball may be ſubſtituted, which is more efficacious.

Take cinnabar of antimony and Caſtile ſoap, of each half an ounce; of wood-lice three drams, of ſaffron two drams: make them into a ball with a ſufficient quantity of honey.

The diuretick ſalt is an excellent diſſolvent in this caſe, and therefore a quarter of an ounce may be put into either of the balls inſtead of the ſoap.

Dr. *Bracken*, who takes all opportunities to be extremely ſevere upon others, often lays himſelf very open to be laſhed himſelf, otherwiſe he would never have affirmed that a ſtone in the gall-bladder had been the cauſe of the jaundice; for if he had ever examined the inſide of a horſe he might have known that he has no gall-bladder. He ſoon after affirms, that there is no difference between ſalt of tartar and ſalt of worm-

wood,

wood, as *Quincy* had done before him. But if this had been true, the college would never have given particular direction for the making ſalt of wormwood in their diſpenſatories. Beſides, *Hoffman* and other good chymiſts, declare the contrary from experiments. Nor is he more happy in his preſcriptions, for he directs an ounce and a half of rhubarb, an ounce of aloes, and two drams of ſaffron, to be made into a ball, with ſyrup of buckthorn, for one ſingle doſe, for the jaundice that ſucceeds the cholic; not to mention that if ever a horſe has ſuch a diſeaſe, it will vaniſh of itſelf in a few days without any medicine at all.

When the diſeaſe is of the mild kind, there will be ſeldom any occaſion to repeat the firſt ball, for then it will diſappear in three or four days. But when it continues obſtinate, it may probably proceed from a ſchirrous liver, and the alterative medicines muſt be continued for ſome time, and you muſt aſſiſt them with rowelling. Neither will it be amiſs to change the cinnabar of antimony for the ſame quantity of Æthiops mineral; becauſe this laſt has been found very efficacious in a ſtubborn jaundice.

Or inſtead of the alterative ball above-mentioned, the following may be given night and morning as before.

Take of Alicant ſoap, eight ounces; of Æthiops mineral ſix ounces; of woodlice, four ounces; of filings of ſteel, three ounces; of ſaffron, half an ounce. Make them into balls of the ſize of a pullet's egg, with a ſufficient quantity of honey.

Of HURTS *and* STRAINS *in the* KIDNEYS.

THE kidneys of a horſe may be overſtrained ſeveral ways; as by drawing too great a weight, by heavy burdens on the loins, and by not permitting a horſe

a horſe to ſtale on journeys. This laſt indeed is not properly a ſtrain, but it has the effects of one, becauſe all the veſſels being turgid and over-loaded, they muſt of neceſſity be too much ſtretched, and their tone debilitated, which is the caſe in all ſtrains. The ſame may happen if a horſe is hard worked, when he is full of blood and humours; or he may receive blows on the loins or other hurts, which turning to an inflammation, may draw the kidneys into conſent.

When the horſe has undergone any of the hurts or hardſhips abovementioned, which affect the kidneys, it may be diſcovered by a weakneſs of the back and loins, by difficulty of ſtaling, by thick and foul urine, ſometimes bloody. Theſe ſymptoms are attended with faintneſs, deadneſs of the eyes, and loſs of appetite. But there is one ſign very particular, and that is, he can ſeldom or never back without diſcovering ſigns of pain. The ſame thing will happen, when a horſe has been wrenched in the back, but then there is no great alteration in the urine, except its being a little higher coloured than ordinary, nor yet do they loſe their appetite or fleſh. When the diſeaſe has continued a conſiderable time, it is attended with all the ſigns of a ſurfeit. When a fever attends a difficulty of ſtaling, it is a ſign of an inflammation of the kidneys.

With regard to the *prognoſtics*, diſeaſes of the kidneys are never without danger, eſpecially when they continue long, and the horſe breaks out into ſcabs and blotches. An inflammation of the kidneys is very dangerous unleſs taken in time. When a horſe's urine is turbid and yet comes away without much pain or ſtraining, while the appetite is good and his eyes are briſk and lively, there is no danger. As alſo, when he ſtales, and the thick ſediment abates by degrees till the urine comes to be of a natural colour. But when the urine is thick and ropy, and full of ulcerous matter or blood, attended with weakneſs and want of appetite, the caſe is dangerous. When the difficulty of

ſtaling,

ſtaling, and change in the urine proceed from a cold only, this diſeaſe may be eaſily cured. When the gleeting of the yard is the conſequence of a cold, laxative phyſic and balſamics, will carry it off. But as theſe laſt are only a ſymptomatic diſorder, regard muſt always be had to the primary diſeaſe, which ſee.

The cure, as ſoon as the horſe has recieved any injury, muſt be begun with plentiful bleeding, to prevent an inflammation; and if the hurt is very violent, it muſt be repeated occaſionally. To heal the internal hurt, to cleanſe the kidneys, and to make the urine paſs freely, nothing can be better than the following drench, which muſt be adminiſtered morning and night, when there is no inflammation.

Take Venice turpentine and ſpermaceti, of each half an ounce; of eſſential oil of juniper, thirty drops. Incorporate theſe together, and then mix them with a pint of the following decoction, and two ounces of ſyrup of marſhmallows.

Take of ground-ivy and plantane, of each half an ounce: boil them in three pints of water to a quart, and then ſtrain off the liquor.

This is a great deal better than Locatelli's balſam, Iriſh ſlate, &c. which are commonly given; for Locatelli's balſam is nothing but oil, bees-wax, and turpentine coloured with red ſaunders. *Gibſon* has the following balls:

Take Iriſh ſlate in powder, and ſpermaceti; of ſalt petre ſix drams, with a ſufficient quantity of Barbadoes tar, and liquorice powder, and make them into balls. Or,

Take of Locatelli's balſam, an ounce; the powders of Florentine orris and liquorice, of each half an ounce; of ſal prunella the ſame quantity; of ſpermaceti, ſix drams: make them into balls with the ſyrup of marſhmallows.

Either of theſe are to be given night and morning, till eight or ten of theſe balls are taken, giving a draught of the following decoction after each doſe.

Take

Take of the roots of marſhmallows wiped very clean, but not waſhed; of roots of parſley and aſparagus, wiped and cut into ſlices, of each two handfuls; coltsfoot and horehound, of each a handful; of liquorice root ſliced, an ounce. Boil them in ſix quarts of barley water to four quarts. When the decoction is poured off and ſettled, warm the clear and diſſolve it in an ounce of gum tragacanth and a pound of honey. A pint or three half-pints is a doſe.

I was willing to give you this method of cure, but the drink I recommended before is much better. If the urine ſhould ſtill come away with difficulty, you may diſſolve half an ounce of Caſtile or Alicant ſoap in each doſe, and it will provoke urine more forcibly by diſſolving the matter in the kidneys that hinders the ſecretion.

When the urine is made eaſily, and in a ſufficient quantity, and the horſe recovers his ſtrength and vigour, you need do nothing more than give him a laxative purge or two to perfect the cure.

Take of aloes an ounce; of gum guaiacum and rhubarb, of each half an ounce; of balſam of capivi, a quarter of an ounce: make them into a ball with ſyrup of balſam.

If notwithſtanding all our endeavours there is a plentiful diſcharge of foul turbid urine, with a naſty ſtinking ſmell, and a ſediment of a dark red or purple colour, it is a ſign of an ulcer in the kidneys, and the horſe will continually waſte till he dies.

Of a SUPPRESSION *of* URINE, *the* STRANGUARY, *and* PISSING *of* BLOOD.

SUPPRESSION of urine, commonly called the ſtranguary, may ſometimes, tho' very ſeldom in horſes, ariſe from a ſtone, or from an inflammation of the kidneys, or the neck of the bladder. Sometimes it

it may ariſe from a congeſtion of the blood about the neck of the bladder, which may be ſo diſtended, as to deny a paſſage to the urine. In ſome, it may be owing to a ſpaſm or cramp in the neck of the bladder; in others to a palſy of that part; or from a tumour, abſceſs, or ulcer in the proſtate gland. When blood deſcends from the kidneys into the bladder, it coagulates there, and ſo plugs up the paſſage.

As therefore the cauſes of a ſuppreſſion of urine are various, we ought to diſtinguiſh them from each other as well as we can. When there is an inflammation of the kidneys, there is a preternatural heat in the loins, attended wi h a fever. When there is a ſtone in the bladder, what urine is made is mixed with a mucus or pus. When there is an inflammation of the neck of the bladder, there is a great heat between the *anus* and the *ſcrotum*. When there is a cramp in the neck of the bladder, the urine that comes away will have a ſtrong ſmell. When the urine is obſtructed by ſtones in the kidneys or urethra, the bladder will be empty, and the horſe will not ſo much as ſtrive to ſtale, nor ſtand ſtradling as in other diſorders in the urinary paſſage, when the bladder is full.

When the urine is entirely ſuppreſſed, and none at all comes away, the horſe's body in a few days will be diſtended with water, and ſwelled to a ſurpriſing degree; and his ſkin will be all over blotches, inſomuch that, unleſs we can yield him ſpeedy relief, he muſt die in a ſhort time. Profuſe ſweat will alleviate the ſymptoms.

When there is an inflammation of the kidneys or bladder, or any of the urinary paſſages, you muſt take three pints or two quarts of blood from a vein in the neck or thigh. He muſt have no ſtrong diuretic but ſuch as are cooling, and which tend to check the febrile heat. Salt-petre may be allowed, and the neutral ſalts, ſuch as vitriolated tartar, with a decoction of

parſley

parſley roots, ground ivy, marſhmallow roots, and fennel roots.

Take of marſhmallow roots, a pound; of parſley roots, half a pound; of water, a gallon. Boil them to three quarts, and ſtrain off the decoction; then diſſolve in it an ounce of ſalt petre.

Give the horſe a pint of this liquor, four or five times a day. Likewiſe take three pints of the ſame drink, and diſſolve four ounces of Epſom ſalt in it for a clyſter, to be immediately injected. Or the following:

Take of parſley, aſparagus, and fennel ſeeds of each half an ounce; of the powder of filipendula, the ſame quantity. Bruiſe the ſeeds, and boil the powder in a pint of white wine, and ſweeten it with honey.

Gibſon preſcribes medicines of ſo hot a nature that they would have very bad effects in all inflammatory caſes, and greatly exaſperate the diſeaſe. However, I ſhall let you ſee what they are that you may be your own judge. He would have the following ball be repeated two or three times the firſt day.

Take of juniper berries pounded, an ounce; ſuccotrine aloes, and ſal-prunella in powder, of each a dram; of rectified oil of turpentine, half an ounce; unrectified oil of amber, and chemical oil of juniper, of each two drams: with liquorice powder make them into two balls for one doſe.

Let the clyſter be made with two ounces of Barbadoes aloes; two ounces of turpentine beat up with the yolk of eggs; nitre bruiſed, four ounces; juniper berries and bay berries bruiſed, of each a handful; let theſe be infuſed in two quarts of a decoction of mallows and marſhmallows, and add a pint of linſeed oil.

Hot medicines ſuch as theſe in inflammatory caſes will certainly do more harm than good. I remember a man that ſome time ago had a ſtoppage of urine from an inflammation of the kidneys. Some buſy body adviſed him to take oil of turpentine, which he did

did with ſuch an effect, that he ſoon became frantic, and was forced to be held down in his bed with two men. He was with much difficulty brought to himſelf again with bleeding and nitrous medicines.

The above medicines may be of uſe when the horſe is not feveriſh, and when the paſſages are plugg'd up by a ſluggiſh matter that will admit being diſſolved: but even in ſuch caſes the beſt remedy is ſoap, which may be diſſolved in ſome of the above drink, and given him as a drench; for liquid medicines in theſe caſes are to be preferred to balls.

When the deſign of giving a clyſter is merely to promote urine and allay ſpaſms, then

Take two quarts of a pretty ſtrong decoction of camomile flowers, and diſſolve two ounces of ſaltpetre therein; then take four ounces of Venice turpentine, and incorporate it with the yolks of eggs, and mix it with the liquor: afterwards add half a pint of linſeed oil, and mix them for a clyſter.

When the parts deſigned for the ſecretion of urine are cold and benumb'd, then the hot medicines will be of uſe; and the following poultice may be laid to his loins.

Take of muſtard ſeed pounded ſmall, or muſtard ready made, a pint; of garlick ſix heads; of camphire two ounces; of ſoap enough to bring them to the conſiſtence of a poultice,

This is a very penetrating compoſition, and may reach the cauſe of the complaint, and if it ſhould raiſe a bliſter it will be never the worſe; nay, in inflammatory caſes, it may be the better. However, when you are certain the kidneys or the adjacent parts are inflamed, it will be the beſt to rub ſome bliſtering ointment well into the loins, or about the region of the kidneys, becauſe that will be the ſpeedieſt method of removing the cauſe, by drawing off the peccant matter. If after the bliſter any ſigns of the ſtrangury ſhould appear, it may be removed by diſſolving gum

arabic in water, and giving ſome of it pretty often; or by the decoction of marſhmallows made pretty ſtrong. The poultice may be ſpread upon flannel and laid to the part, and then bound on with another piece over that. It may be renewed once in two days till the horſe ſtales freely.

When an inflammation of the kidneys turns to an abſceſs, which may be known by purulent and bloody urine, two drams of calomel, which *Gibſon* adviſes, can be of no uſe. But two ounces of bole armeniac, or French bole, given every morning in new milk, is likely to do good, not only in ulcers of the kidneys, but piſſing of blood from any other cauſe. When one kidney only is ulcerated, while the other remains ſound, the horſe may do ſlight work for ſome time, but can never undergo any hard labour.

When an *Inflammation of the Bladder* is the cauſe of a ſuppreſſion of the urine, the horſe will make frequent motions to ſtale, but cannot; their hinder legs ſtand wide and ſtradling: their flanks are diſtended; they often lie down and roll on their backs. Theſe ſymptoms are always attended with a fever when there is an inflammation. The fever always indicates bleeding, after which he may have the following drench.

Take of balſam of capivi an ounce; incorporate it with the yolk of an egg, and mix it with an ounce of ſpermaceti. When theſe are well rubbed together, add ſix drams of ſaltpetre; half a pint of water; half a pint of ſallad oil, and a quartern of compound horſe raddiſh water.

This muſt be given immediately, and if the horſe is not relieved, repeat it again every two hours till he is relieved. Three doſes generally will abate ſymptoms of this kind, and render the horſe eaſy.

When a horſe *piſſes blood*, and it comes away ſuddenly without mixture, it is a ſign it proceeds from the kidneys. But if the blood is ſmall in quantity and of a dark colour, with or without purulent matter, it comes

comes from the bladder. When the ureters are hurt by a rough ſtone, a ſmall quantity of blood will be mixt with the urine, and there will be a difficulty of ſtaling. When the coats of the bladder are hurt by a ſtone, ſo as to cauſe a little blood to come away, the horſe will diſcover great ſigns of pain.

All bloody urine has ſome degree of danger, but it is moſt ſo, when mixt with any quantity of purulent matter.

In general the milk and French bole, recommended before, is an excellent remedy, but it muſt not be mixt with japan earth, as Dr. *Bracken* adviſes, for it will have very fatal conſequences by ſtoping the flux too ſuddenly; and then the grumes will be locked up in the veſſels, whence will proceed inflammations, ulcers and putrefactions. But if the quantity is great, he may have an ounce of compound powder of crabs claws, and an ounce of ſcaled earth in a pint or two of new milk, inſtead of the bole.

When the horſe is full of blood and humours, it will be proper to bleed, let the cauſe be what it will. Then give him a pint of the following drink three times a day.

Take of groundivy and plantain of each an ounce; of ſpring water three quarts; boil them to two, and ſtrain off the liquor; then add of ſaltpetre and the compound powder of crabs claws of each an ounce; ſhake the veſſel every time it is uſed.

This drink is particularly uſeful when any part of the urinary paſſages are inflamed, and may be given inſtead of that with balſam of capivi; when that cannot ſo readily be had, it may be repeated in two hours time when the horſe is not relieved. Two or three drenches will in a great meaſure remove the diſorder, when adminiſtered in time, and may poſſibly prevent the eroſions of the veſſels, and conſequently the piſſing of blood.

Gibſon recommends the following ball as a general remedy for the piſſing of blood.

Take conſerve of red roſes and Locatelli's balſam, of each ſix drams; of ſpermaceti, half an ounce; of ſal-prunella and Iriſh ſlate, of each two drams; of ſyrup of wild poppies, enough to make them into a ball.

The intention of this ball is much the ſame as the medicines recommended before, but is not ſo proper when the diſtemper is recent, as when it has continued ſome time; that is, when the parts have been corroded by the acrimony of the humours.

Of a DIABETES, *or* PROFUSE STALING.

A Diabetes is a piſſing of crude urine, and greater in quantity than the water that is drank. This generally proceeds from a laxity of the kidneys.

When a horſe has this diſeaſe, he loſes both his fleſh and appetite, becomes weak, with a ſtaring of the hair and a ſticking out of the bones; his eyes look weak and watery, and he decays gradually till at length he is unfit for any manner of buſineſs. There are ſome young horſes who ſeem to piſs immoderately when they are firſt backed, but as they only bepiſs themſelves through fear, no other remedy is required but gentle uſage.

Without proper management this is a dangerous diſeaſe. The cure muſt be begun by proper diet, that is, dry meat, a moderate quantity of water given by a little at a time. Then the horſe ſhould have ſuch aſtringents as ſtrengthen the kidneys, not medicines that *Gibſon* preſcribes, that are only fit to ſtop a looſeneſs. But leſt I ſhould ſeem to blame him without a cauſe, I will give you his preſcriptions.

Take of conſerve of red roſes, two ounces; of Locatelli's ablſam an ounce; of japan earth in fine powder,

and

and ſpermaceti, of each two drams; of diaſcordium, half an ounce: make them into two balls with a ſufficient quantity of ſtarch, and roll them in liquorice powder.

He adviſes to give one of theſe balls in the morning, and the other in the afternoon, between his feeds, with four hornfuls of the following decoction after each.

Take jeſuits bark bruiſed, four ounces; of biſtort and tormentil roots, of each two ounces; of gum arabic three ounces; of red roſes dryed, an ounce: boil them in two gallons of lime water to one, and when the decoction is cold, diſſolve in it an ounce of diaſcordium.

The firſt of theſe preſcriptions will render a horſe coſtive, and conſequently will increaſe the quantity of urine; for the dryer the dung is, the more he will piſs, becauſe the water muſt come away by one outlet or other. The ſecond preſcription in general is the ſame, and muſt have the ſame effects. As for the gum arabic it has a tendency to relax the kidneys, rather than ſtrengthen them; however, there are two good medicines in it, that might have been ſerviceable, if not clogged with ingredients, which ſerve for another intention. The bark is a univerſal ſtrengthener, and the lime water will act directly on the kidneys, and brace up the relaxed fibres. He has another medicine for horſes of ſmall value, which is worſe than the former, becauſe it is more aſtringent.

Take of pomegranate bark, four ounces; of baluſtines, two ounces; biſtort and tormentil root, of each three ounces: boil theſe in two gallons of water to one, and give three or four hornfuls after each ball.

The beſt medicines in this diſeaſe are thoſe which ſtrengthen the kidneys without binding the body.

Take of the Peruvian bark, an ounce and a half; of roch allum, half an ounce: make them into a ball with common treacle; they ſhould be taken morning and night, and waſhed down with three or four horns of the following decoction.

Take of the ſhavings of ſaſſafras, a pound; of water two gallons: boil them to one, and then pour off the liquor for uſe.

If theſe ſhould fail, as they ſeldom will, then

Take of cows milk, a quart; of roch-allum, half an ounce: boil them together till the milk turns, and ſeparate the curd from the whey. This quantity of whey will ſerve for a day, and may be given him at three times.

A quart or two of ſmith's forge-water is a great ſtrengthener of the kidneys, and may be given with or without his other remedies.

Of SURFEITS, HIDEBOUND HORSES, *and the* MANGE.

SURFEITS in horſes have no manner of relation to thoſe in men, for the former have their origin from diſorders of the blood, while the ſeat of the latter is in the ſtomach, and may be eaſily removed by evacuations.

Surfeits may be owing to different cauſes; but as the cure muſt be directed by the ſymptoms, it is not worth while to ſpend any time to ſearch after them.

A horſe is ſaid to be ſurfeited when he has a dirty look, though no pains have been ſpared to keep him clean. He has a ruſty appearance with a ſtaring coat, and the ſkin is often full of ſcabs and dander, which when rubbed off return again. Some have ſmall bumps like beans and peas, while they are in the ſtable, which diſappear when they are turned out to graſs. Others have ſcabs all over which are ſometimes dry and ſometimes moiſt, with heat and inflammation, and ſuch violent itching that they rub themſelves raw in many places. Some have no eruptions at all, but are dull, ſluggiſh, and lazy, with an unwholſome look; others are lean and hidebound, while others again have a ſort

of

of lameneſs, with pains which ſeem to ſhift from one part to another like the flying gout.

With regard to the prognoſticks, when ſurfeits are not taken in time, they are hard to cure, becauſe they have taken deep root in the blood and humours. But when freſh, the cure is generally pretty eaſy. When the horſe has a rough coat and hidebound at the ſame time, he will be cured with difficulty. When there are dry ſcabs or ſcales that peel off, it reſembles the leproſy of human bodies, and the diſeaſe will bid defiance to remedies for a long time; but when the horſe has eruptions attended with hot, itching matter, and fret off the hair, it may be managed pretty eaſily unleſs it returns at certain ſeaſons of the year. When a horſe has long had this diſeaſe, and loſes his appetite, is thick winded and coughs often, and blows and heaves when he is ridden, the caſe is deſperate. In winter many horſes have a rough, ſtaring, or downy coat; but this ſhould not be miſtaken for a ſurfeit, for this coat ſeems only to be provided by nature as a defence againſt the cold.

Thoſe horſes are ſaid to have a *dry ſurfeit*, when there is no moiſture of the ſkin attending the eruptions, or even when he has the other ſigns without any eruptions at all. However the bumps or lumps in the ſkin are not properly called a ſurfeit, and they may be cured by bleeding, and an opening diet without any thing elſe.

In the cure he ſhould have a laxative purge once a week for three or four times.

Take of ſuccotrine aloes an ounce; gum guaiacum and Epſom ſalt, of each half an ounce; of diaphoretic antimony two drams: make them into a ball with honey, and roll it in liquorice powder.

Take gum guaiacum and cinnabar of antimony, of each eight ounces; of flower of brimſtone ſix ounces: make theſe into a fine powder, and give him an ounce in his morning

and evening feeds, on thoſe days on which purging is omitted. Likewiſe,

Take of raſpings of the wood of guaiacum three ounces; of ſpring water a gallon; boil them in a gallon of water to three quarts; then put in an ounce of the raſpings of ſaſſafras, and half an ounce of ſliced liquorice. Strain off the liquor and let it ſettle. The horſe muſt have a quart of this decoction every day when he takes the powders.

After ſome days from his beginning to take the powder, if the ſcabs don't come off, you may rub the weaker mercurial ointment of the ſhops over them, and may repeat it once in three days. This ointment will cure this diſeaſe alone, but then it is not ſo ſafe.

The *wet ſurfeit* proceeds from ſharp humours, and appears with moiſt eruptions. Theſe eruptions appear all over the body, but principally on the neck, rump, and hips, with great heat and inflammation. Sometimes the neck or withers ſwell greatly in a night's time, and emits a large quantity of a briny humour, which if care is not taken will turn to the poll-evil or a fiſtula. Sometimes this humour falls on the limbs and is hard to cure, without great care and trouble.

Sometimes the hair will peel off at the ſpring and fall, chiefly on the neck and face; but this happens oftenеſt in the ſpring when horſes are ſhedding their winter coats. This is always owing to miſmanagement, or the undue adminiſtration of mercurials.

The *wet ſurfeit* may be cured with the ſame internals as the *dry*; but if you would have a purge that will work in twelve hours, you may diſſolve four ounces of the lenitive electuary, and the ſame quantity of Epſom ſalt in a quart of warm gruel, and give it him in the morning faſting. But take notice there is no need of the mercurial ointment, nor any other external

ternal medicine. And as ſome are too apt to uſe repellents, all ſuch things ſhould he carefully avoided.

The diet ſhould be cool and opening, till the ſkin returns to its natural ſtate; ſuch as ſcalded bran or ſcalded barley once a day; and if the horſe is hidebound he ſhould have an ounce of fænugreek ſeeds every day in one of his feeds for a month at leaſt.

Hideboundneſs in horſes is never an original diſeaſe, but only a ſymptom of ſome other diſorder or from working them beyond their ſtrength. Sometimes this ſymptom ſucceeds fevers, ſurfeits or convulſions. When it is preceded by none of theſe, the fault lies inwardly in one of the bowels, and ſometimes is cauſed by worms, which laſt may be eaſily cured.

A horſe is ſaid to be hidebound when his ſkin adheres ſo cloſe to his ribs, that you would think it could not be moved. It ſhould be taken in time, before it becomes chronical, otherwiſe it will be hard to manage. Mercurials in this caſe, or where there are worms, are of ſingular ſervice; therefore you may give two drams of mercurius dulcis over night. Make it into a little ball with conſerve of roſes, and the next morning it may be carried off with the following purge.

Take of ſuccotrine aloes an ounce; of myrrh half an ounce: of rhubarb two drams; of the oil of ſavine ſixty drops. Make them into a ball with ſolutive ſyrup of roſes.

Theſe may be repeated three time in three weeks, and afterwards give the cinnabar powders before directed. Horſes that are become hidebound for want of a ſufficient quantity of meat, ſhould not be ſuffered to feed largely all at once, but their allowance ſhould be increaſed by degrees, and when he comes to his fleſh the diſorder will diſappear.

The *mange* is a cutaneous deſeaſe, which renders the ſkin thick, full of wrinkles, and of a tawny colour, which may be plainly ſeen through the little hair that remains, which ſtands up ſtrait. It appears chiefly about

about the loins, tail, and maw. The ears too are generally almoſt naked, but not raw, as in the hot ſurfeits, as well as their eyes and eyebrows.

The mange is like the itch and may come by infection. Like that too it will deprive the blood and humours, if not taken in time. It is more eaſily cured than that which proceeds from poor unwholſome diet. When it is freſh caught it may be cured with externals alone. Thus,

Take hog's lard ſix ounces; of flower of brimſtone two ounces: mix them well together, and anoint all the diſeaſed parts

Or the following.

Take of ſulphur vivum in powder one pound; of ſal ammoniac four ounces; mix them in a mortar with a ſufficient quantity of hogs lard to bring them to the conſiſtence of an ointment. And give the horſe two ounces of brimſtone every morning in a pint of water gruel.

If this ſhould prove ineffectual, mix equal parts of this and the mercurial ointment together, and uſe it in the ſame manner. If you would have it ſtill ſtronger, mix four ounces of the white ointment with two ounces of white precipitate for the ſame uſe. Some mix train oil and gunpowder, and bring them to the conſiſtence of a ſoft liniment. Others mix gunpowder, Barbadoes tar, and black ſoap. Some waſh the diſeaſed parts with beef brine, which has cured a recent mange.

Inwardly mercurials muſt be given when the diſeaſe has continued any time, which may be either two drams of crude quickſilver killed with turpentine, or the ſame quantity of mercurius dulcis made up into a ball with a little common paſte or dough; and purged off the next morning with any of the former aloetic purges; or he may take two ſcruples of mercurius dulcis, or half an ounce of Æthiop's mineral for three mornings faſting, remembering always when you give mercurials in a morning, to let the horſe faſt two hours before, and two hours after each, as well as to

keep

keep him warm and free from wet; letting him have a feed of ſcalded bran every day. If you have a conveniency of giving him a little exerciſe under cover, it will make the medicine perform its office the better.

When every thing elſe fails, the following compoſition has been of excellent ſervice.

Take two drams of mercurius dulcis, and as much of the golden ſulphur of antimony; rub them ſo long together, till they are intimately mixed. This will ſerve for a morning doſe, with the former precautions and management.

When the horſe is got free from his diſtemper, the place where he ſtood ſhould be carefully cleaned and waſhed with ſoap-ſuds, as well as his cloathing.

Of the FARCY.

THE *farcy* or *farcin* has been miſtaken by many for ſome one of the diſtempers already treated of; but is properly a diſtemper of the veins, and when inveterate thickens their coats ſo as to make them appear like ſo many cords. Their ſize always bears a proportion to the greatneſs or ſmallneſs of the veſſels they affect. At firſt one or more ſmall tumours, like grapes or berries, ſpring out over the veins, which are very hard, and ſoon turn to ſoft bliſters, which breaking, diſcharge an oily or bloody matter, and turn to very foul malignant ulcers. In ſome horſes it breaks out in the head; in others, on the external jugulars or neck-vein. In others again, on the plate-vein, running downwards on the inſide of the fore-arm towards the foot; and ſometimes upwards towards the briſket. In ſome the farcy begins behind about the paſterns, and along the large veins of the thigh, riſing upwards into the groin, and towards the ſheath,

ſheath. Sometimes it appears in the flanks, and makes its progreſs towards the lower belly.

As to the prognoſtics, when the farcy begins on thoſe parts of the head where the muſcular fleſh is thin and the veins ſmall, it may be cured with eaſe. But when it attacks the looſe parts, ſuch as the kernels under the jaws, noſtrils, and eyes, and continues ſo long as to creep to the neck-vein, and renders it corded, it is more difficult to manage. When it begins on any part where the veins are ſmall, and kept in conſtant agitation by the motion of the horſe, and always upon a ſtretch, ſuch as the outſide of the ſhoulder and the outſide of the hips, the diſeaſe can never take any deep root; becauſe the action of theſe parts has a tendency to diſperſe obſtructions. It is a great deal worſe when it riſes on the plate-vein, ſwells, and then turns corded, and the more when the glands or kernels called the auxillary glands, which lie under the armpit, become tumid with the anguiſh. The cure is ſtill more difficult and tedious when the veins on the inſide of the thigh are corded, eſpecially when it riſes upwards and affects the kernels of the groin, and the cavernous body of the yard. When it begins on the paſterns, the ſucceſs of the medicines is doubtful, becauſe they are apt to ſwell and turn to callous ulcers. The moſt promiſing ſign is when the farcy is at a ſtand, and does not ſpread; but if it begins on one ſide of the horſe, and paſſes to the other, it is a ſign of malignity, and the event is doubtful. When it riſes up to the middle of the back and loins, unleſs it began in the ſhoulder or hip; then the anguiſh may affect thoſe parts without foreboding a bad event. For it may be cured without much trouble. Horſes that are fleſhy, full of blood and humours, always fare worſe than thoſe that are in a moderate condition. Thoſe that are very lean by hard labour, ſeldom do well with it. But when there is any internal decay, or if it attacks the ſpaces between the large muſcles, there producing

freſh

freſh ſwellings and large abſceſſes, the diſeaſe will always prove fatal.

When the farcy is an epidemical diſeaſe, and appears in ſeveral parts of the body at once, firſt upon the principal, and then proceeding to the ſpaces between the large muſcles with an inflation and ſwelling of the kernels about the neck and throat, at the ſame time cauſing greeniſh or bloody matter to run in plenty from both noſtrils, with a ſtench like that of a dead horſe, he will ſoon die rotten: This may properly be called the peſtilential farcy.

A *mild farcy* may be cured by bleeding alone, if joined to moderate exerciſe or labour, ſuch as going to plough and cart. I call that farcy mild that is only ſuperficial on the ſmaller veſſels; particularly when it appears on the head, the outſide of the ſhoulder, the prominent part of the neck above the neck-vein, or near the withers, or the outſide of the hips.

A *moderate farcy* is when it ſeizes and produces cords in the large veins, as the plate vein, the jugular or neck-vein, and the thigh-veins. Or when they appear on the feet and paſterns riſing towards the hock and knee, as alſo on the flank when they creep down towards the lower belly.

The *worſt farcy* is when it appears on one ſide firſt, and then paſſes to the other, or when it breaks out on both ſides at once, or when the ſores and ulcers become malignant, and affect the whole habit of body.

Young horſes whoſe heads are fleſhy, are moſt ſubject to the farcy on that part. It riſes on the cheeks or temples, and looks like net work, or ſmall creeping twigs full of berries. Sometimes it inflames the eye, and ſometimes little bliſters run along the ſide of the noſe, and ſometimes round the lips, which are very troubleſome to the horſe, becauſe they hinder him from chewing. When it riſes on the outſide of the ſhoulder, it runs along the ſmall veins of the upper part of the arm, with heat and inflammation. Sometimes

times a few ſmall buds will ariſe near the withers or on the hip, but theſe are of little conſequence.

This diſeaſe at firſt is of the inflammatory kind, therefore it will require plentiful bleeding, eſpecially when the horſe is fat and full of blood and humours. But this muſt be only in the beginning of the farcy, and while the diſeaſe continues in the inflammatory ſtate, for afterwards when it is ulcerated it will do more harm than good. Likewiſe the bleeding muſt be moderate when the horſe is low in fleſh. Beſides, his body muſt be kept open with the following cooling and laxative phyſick.

Take four ounces of lenitive electuary; two ounces of Epſom ſalt, and the ſame quantity of ſaltpetre; diſſolve them in a quart of ſpring water for a drink.

This muſt be given every other morning for a week, faſting two hours before and two hours after it. Then let him have warm water and a feed of ſcalded bran. After this, give him an ounce and half of Epſom ſalt, and the ſame quantity of ſaltpetre, diſſolved in water every day for three weeks or a month. The ſores from the very firſt, muſt be anointed with the following ointment.

Take of cintment of elder four ounces; of oil of turpentine two ounces; of ſugar of lead half an ounce; of white vitriol two drams: mix them together in a gallipot, after you have reduced the ſugar of lead and the vitriol to a fine powder.

The buds and ſwellings muſt be anointed with this, and repeated as often as it becomes dry, which may be about twice or thrice a day, till the ſores begin to run; and if the matter is thick and well digeſted, the diſeaſe will ſoon terminate. Sometimes the buds will diſappear gradually with breaking, leaving little bald ſpots in their room, and then moderate labour or exerciſe will complete the cure. But if dry lumps remain without hair; it will be neceſſary to give him two ounces of crocus of antimony, or crude antimony every

every day for the firſt fornight, and then an ounce every day for the ſecond fortnight.

When the farcy begins near the paſterns, or on the flank, or thigh-vein, or plate-vein; at firſt the ſwelling is often no bigger than a haſle nut. Sometimes there is two or three little hard knots in the vein, of the ſize of a horſe bean, which if over-looked increaſe gradually, and when the horſe's blood is in a bad ſtate, it will in a few days become an inch in diameter; that is, from the thickneſs of a packthread, it will reſemble a large rope. When it appears in the thigh-vein, it will cauſe a haulting or lameneſs, and then it will be ſoon diſcovered; as alſo by the ſwelling of the hock. When it appears firſt in the ſmall of the leg, feet and paſterns, it may be miſtaken for the greaſe, till it riſes upwards and fixes on the larger veins.

The cure muſt be begun with bleeding as before, and the following mixture muſt be applied to the vein as ſoon as poſſible.

Take of common oil of turpentine ſix ounces, and put it into a pint bottle; then drop three ounces of oil of vitriol into it, gradually, for fear of a great effervescence, which may burſt the bottle. That is, let the firſt ſmall quantity that is dropt in have done ſmoaking, before you drop any more.

This mixture ſerves to abate the acrimony of the humours, to hinder the riſing of fungous fleſh, and to make the ſores run. The part muſt be firſt rubbed with a woollen cloth, and then this mixture muſt be applied to all the buds and ſwellings, wherever they are, twice a day or oftner. But when the farcy lies looſe in the fleſhy parts, there muſt be equal quantities of the oils of vitriol or turpentine. This method may be continued a fortnight, or till the ſores run plentifully with well digeſted matter, and begin to dry. Then mix equal parts of ointment of elder and honey for a liniment, to make the hair grow again. The following liniment is better.

Take

Take of ſallad oil three ounces; of ſpermaceti ſix drams, of bees wax four drams: melt them together over a gentle fire, and ſtir them till they are quite cold.

Inwardly you muſt give him crude antimony as above directed, in the evening when he takes his laxative phyſick, and then crocus of antimony.

When there is a diſpoſition in the blood to a farcy, it may begin from the pricking of a ſharp ſpur; it may likewiſe ariſe ſpontaneouſly about the ſpurred part without any pricking at all; and then the hair will ſtare, and ſtand up like a tuft all round the buds and bliſters, and the matter that runs from thence will be purulent, and of a clammy or greaſy conſiſtence. If this is not ſoon ſtopped it will ſpread greatly. In this caſe uſe equal parts of the oils of vitriol and turpentine as has been mentioned before, and apply them twice a day. Likewiſe apply the following mixture all over the affected ſide, to prevent the ſwelling of his belly.

Take of rectified ſpirit of wine four ounces; oils of vitriol and turpentine of each two ounces; of the beſt white wine vinegar ſix ounces: firſt put the ſpirits of wine, oil of turpentine, and vinegar together, and then pour in the oil of vitriol gradually, or

Take of rectified ſpirits of wine four ounces; of camphire half an ounce; diſſolve the camphire in the ſpirits, and add of vinegar ſix ounces; this done, diſſolve an ounce of Roman vitriol in a gill of ſpring water, and mix them, ſhaking the bottle at the time of uſe.

Theſe two laſt preſcriptions are *Gibſon*'s, and they would anſwer the purpoſe pretty well, if there was no better to be had, to work a cure. The deſign is to abate the inflammation, and ſtop the progreſs of the diſeaſe. This may be performed very ſpeedily by a mixture of oil of ſweet almonds, and ſpirit of ſal ammoniac. A weak ſort is made by putting four ounces of oil, and an ounce of ſpirit into a glaſs vial, and ſhaking them together till they are incorporated. The ſtrong ſort is made by mixing equal parts of the one

and

and the other. There is nothing repelling in this as there is in acids, particularly oil of vitriol, and vitriol and vinegar. I mean the oil of vitriol is a repellent, when it is ſo far weakened by other liquors, as to loſe its cauſtic nature. Which is the caſe in the firſt of the before mentioned preſcriptions. On the other hand, when equal parts of oil of turpentine, and oil of vitriol are mixed together, the oil of vitriol does not act as a repellent, but as a cauſtic, and eats into the part it is laid upon.

When the farcy on the paſterns is diſcovered in time, it may be cured without much difficulty; the danger lies in miſtaking it for the greaſe, or a diſorder ariſing from another cauſe. But if we regard theſe diſeaſes with due attention, we ſhall find they differ widely; for the greaſe generally breaks out firſt at the bending of the paſterns backwards, and runs downward to the heel, and if it breaks upwards, a ſharp ſerum oozes through the ſkin, that ſometimes brings off the hair, and by fretting the ſkin turns it ſcabby; and if you lay your hand upon the part, you will find it hot. Now the farcy commonly begins to appear on the paſtern joint, and then it is only a ſingle bud at firſt, on the fore part, or one ſide of the paſtern, which cauſes a ſwelling of the joint. After this, other buds ariſe in little round tumours, which make the legs look knotted like a crab-tree ſtick, and hinder the horſe from lying down. Then the knots aſcend upwards according to the courſe of the veins, into the hock, and from thence to the thigh, as has been already mentioned. When it begins on the ſhackle vein, it is where it paſſes over the great ſinew behind. If in both caſes it is taken in time, the humour may be repelled by a poultice made with bran and verjuice, bound round the part and renewed once a day. When there is any proud fleſh, it muſt be touched with *aqua fortis*, about an hour before the poultice is applied.

When the veins become corded, and aſcend as high as the thigh veins, or any large veſſel, a moderate quantity of the following mixture muſt be rub'd on the veins and ſwellings.

Take of linſeed oil half a pint; *oil of turpentine, and oil of petre of each two ounces*; *tincture of euphorbium, and tincture of hellebore of each two drams*; *of the green ointment of the ſhops two ounces*; *of oil of origanum half an ounce*; *of double aqua fortis half an ounce*; *mix them together, and when the effervescence is over, add two ounces of Barbadoes tar*; *put them in a bottle, and ſhake them together.*

This is a ſtimulating mixture, and of great uſe to diſſolve the coagulated blood in the veins, and reſtore the parts to their due tone and functions. It will be ſufficient to apply it once in two or three days, unleſs there is matter underneath the ſkin, or proud fleſh plugs up the orifices. In this caſe it muſt be taken down by a ſmall hot iron, and the edges of the ſore muſt be cauteriſed all round, if there is any fungous fleſh thereon. When it ſhall chance to riſe again, it may be touch'd with aqua fortis, or with quickſilver and aqua fortis, rub'd in a mortar to the conſiſtence of a liniment, and ſmearing the ulcers with it, as often as they appear foul and rank. When the ulcers are moiſt, lime-ſtone and burnt allum may be made into a fine powder, and ſtrew'd thereon.

There are a great many deſperate medicines made uſe of by the common farriers, which are not worth repeating, unleſs to warn others from uſing them. But the beſt way to prevent that is, to take no notice of them at all. Some of their poiſonous drugs only applied outwardly, have kill'd many horſes, and dogs that have fed on their carcaſes have died likewiſe.

The following balls are proper in every ſtate of the farcy, and have cured it in a week or two, when given before the ſkin has ſuffered much by the diſeaſe, by giving them twice a day. But when the farcy is inveterate,

terate, they muſt be continued a month or two, and ſometimes three, not neglecting the outward applications.

Take eight ounces of cinnabar of antimony; round birthwort, and gum guiacum in powder, of each two ounces; make them into paſte, with a ſufficient quantity of honey, and make balls of the ſize of a walnut.

Some recommend two ounces of quickſilver killed, with an ounce of turpentine, and made up in four balls, with gum guiacum, diapente, and a ſufficient quantity of honey, given twice a week with purges between, to prevent a ſalivation. Others rub the knots with the mercurial ointment, before they break, to diſperſe them; and after they are broken with equal parts of turpentine and quickſilver rub'd together. But as the quickſilver will get into the blood by theſe means, the horſe muſt be purged now and then, to carry it downwards.

Dr. Bracken *ventures upon an ounce of butter of antimony, the ſame quantity of bezoarmineral, beaten up with half a pound of the cordial ball: the doſe three quarters of an ounce, every day for a fortnight or three weeks, faſting two or three hours after it.*

Turbith mineral is a very likely medicine, given in ſmall quantities, that it may neither make the horſe ſick, or raiſe a ſalivation. The doſe is a ſcruple at a time, made into a ball with an ounce of Spaniſh liquorice. It is to be given every other night for a fortnight, and then to omit it for eight or ten days, and repeat it again. When the horſe's mouth begins to be ſore, which may be known by his chewing, then give him gentle purges to carry the humours downwards.

But the moſt efficacious of all theſe medicines is calcined mercury, four grains of which, given every third night for three or four times, will have ſurpriſing effects. It muſt be given with four grains of opium, and a ſcruple of camphire, and make it into a

ball with a bit of the cordial ball, of the ſize of a walnut. The ingredients it is mixt with, will prevent its ſalivating the horſe. In general it may be given according to the urgency of the ſymptoms, that is, every night in very bad caſes. But then his mouth muſt be watched, leſt a ſalivation ſhould riſe contrary to expectation.

The *Water Farcy* or dropſy, has no reſemblance with the common farcy, but is like the dropſy called the *Anaſarca* in men. It ſhews itſelf in ſeveral parts of the body with ſoft ſwellings, which yield to the preſſure of the fingers. Another kind begins with a feveriſhneſs and loſs of appetite; but when the tumour comes to maturity, the appetite returns, and nature performs the cure, with the help of a feed of ſcalded bran, with flour of brimſtone. The tumours are generally hot, and a little inflamed, which ſometimes diſappear of themſelves, and ſometimes break. Then they diſcharge a little ſcalding hot water. In a day or two it will digeſt, and heal without turning to an ulcer.

The regular way of curing this laſt ſort is by bleeding and diuretics. The following drink is effectual in this caſe.

Take the leaves and bark of elder, of each an ounce; of camomile flowers half an ounce; of juniper berries bruiſed two ounces; boil them in two quarts of water to three pints, and then add an ounce of ſaltpetre, and two ounces of honey.

Give this every other morning, with an ounce of equal parts of gum guiacum, and cinnabar of antimony once a day, in a feed of ſcalded bran. They may be continued about a week or longer if neceſſary.

In the *Dropſy Anaſarca*, make uſe of the following diuretic ball.

Take of ſaltpetre two ounces; of the powder of ſquills half an ounce; of camphire a dram; of honey enough to make

make a ball. This muſt be given once a day, with a horn or two of the above drink.

When the water has been carried off in a good meaſure by this method, then give him two or three purges, made with an ounce of ſuccotrine aloes; two drams of jalap, half an ounce of Epſom ſalt, and ſolutive ſyrup of roſes enough to make them into a ball.

While he is taking the firſt ball, he muſt have the beſt of hay and oats; but the firſt thing after his ball muſt be ſcalded bran, mixt with an ounce of crude antimony, and the ſame quantity of ſulphur. This method will cure a horſe which is otherwiſe ſound. But when the dropſy proceeds from an inward decay, or a corruption of the liver, he will loſe his appetite, and gleet at the noſe, with a deadneſs in his looks; you may, if it be worth while, attempt the cure of the original diſeaſe.

Of CRITICAL TUMOURS.

CRITICAL tumours are the conſequences of acute diſeaſes, when the febrile matter is thrown upon ſome particular part, which may either prove ſalutary, or otherwiſe, in proportion to the uſe and dignity of the part, to which the tranſlation is made. If it falls on the internal parts or viſcera, it is generally fatal; on the joints it produces lameneſs. When it affects the muſcular and outward parts, it ſhould never be repelled, but brought to ſuppuration, and then the horſe will be reſtored to his health.

When it falls on the glands under the jaws, or behind the ears, it begets the ſymptoms of the ſtrangles, and then they muſt be often anointed with ointment of marſh-mallows; their heads muſt be covered, and they muſt have plenty of gruel to drink. By this means they will break, and diſcharge great plenty of

matter. But if they ſhould not break of themſelves, they muſt be opened with a ſmall hot iron.

Sometimes critical tumours affect the poll or withers, and cauſe the poll-evil or fiſtula. Theſe are to be cured like diſorders of this kind that ariſe ſpontaneouſly. When they appear upon the groins, they may cauſe the inſide of the groins to ſwell. This ſwelling ſometimes runs along the ſheath, and towards the lower belly, breaking near the cleſt.

When theſe ſwellings appear a little below the ſtifle bone, or run towards the hock, they generally are ſeparated into ſeveral ſmall puſtules, which without great care turn to ſcabby ulcers, which leave a thickneſs on the joint. Sometimes they fall upon the paſtern joint, which muſt be treated with fomentations to make them perſpire through the ſkin. They ſhould be made ſcalding hot, and then flannel ſhould be dipt therein, and wrung out dry. Then they ſhould be applied as hot as poſſible, and kept round the part till they begin to cool; then apply another as before; this muſt be repeated ſix or ſeven times. The laſt ſhould be bound on with another dry one over it, to keep up a conſtant perſpiration. The fomentation may be thus made.

Take ſouthernwood, the dried tops of the ſea wormwood, dried camomile flowers, of each an ounce; of dried bay leaves half an ounce: boil theſe ſlightly, and then pour off the water; to which add a pint of ſpirit of wine.

Of SWELLINGS *from* EXTERNAL ACCIDENTS.

HORSES are liable to diſorders of this kind from blows, bruiſes, and other accidents, which are always proportionable to the violence of the ſtroke or ſhock, by whatever means it is applied. Blows on the

the head may be ſo ſtrong, as to bring on mortal convulſions. Bruiſes on the muſcular parts may bring on an impoſthumation; bad ſaddles may create navel galls. In ſhort, a horſe may be hurt ſo many various ways, that it is next to an impoſſibility, to enumerate them all; nor indeed is it neceſſary, becauſe in treating them there is but one intention of cure.

When the blow has been very lately given, and the tumour has no tendency to ſuppurate, you may venture to repel it by aſtringents, and if it ſhould be great, you ſhould make a revulſion by bleeding. Bathe the tumour with hot vinegar and verjuice, and when its ſituation will admit of it, make a bandage with flannel, and dip it in the ſame liquor, and then roll it on. This ſhould be applied frequently till the ſwelling and inflammation is abated. Sometimes a cold charge will be neceſſary, which is made with vinegar, bole, and the whites of eggs, which muſt be ſo mixt as to make it of the conſiſtence of a poultice, and ſpread upon the part that is hurt. Or it may be made with vinegar, oil, and oatmeal. They may be applied twice a day after the bathing, till the ſwelling abates. Then to perfect a cure,

Take camphorated ſpirit of wine four ounces; ſpirit of ſal ammoniac one ounce, and mix them.

This will take away the remainder of the ſwelling.

Sometimes it will appear neceſſary to make uſe of the fomentation mentioned in the laſt ſection. Some recommend two ounces of ſal ammoniac, boiled in a quart of chamber-lye, made warm every time it is applied.

When bruiſes are ſo great as to occaſion an extravaſation of the blood, which may lie under the cuticle, or deeper, ſoas to cauſe little abſceſſes, the part may be ſcarified when it does not make its own way out through the rotten teguments. When this happens, you have nothing more to do but to anoint the parts

affected with the white ointment of the ſhops, which is made with oil, bees wax and ſpermaceti.

When a horſe's mouth is hurt by bad bits or otherwiſe, we muſt take care to prevent an ulceration, which may be done by the following mixture.

Take ſpirit of wine and vinegar, of each four ounces; of honey an ounce; of burnt allum in powder two drams, and mix them in a vial. Waſh the ſores with this every morning and evening. This likewiſe may be injected up the noſtrils when there is a ſore or a tendency to an ulceration in that part.

Of MOLTEN GREASE.

MOLTEN greaſe is the voiding greaſy matter with the dung; which ſometimes happens to very fat horſes that ſtand much in the ſtable. Horſes of hot conſtitutions which are apt to be coſtive, will ſometimes void great quantities of ſlimy matter like corruption, and the balls of the dung will be covered with a pellicle or thin ſkin. This is a common ſymptom which attends the retention of the dung. Nor can either of theſe be referred to the melting of the greaſe properly ſo called. But howeverr it is known that theſe ſymptoms are called by farriers molton greaſe.

When horſes void a matter of the colour of brimſtone, it is a ſymptom of the worms, and weak horſes will often void a looſe ſlimy dung; but neither of theſe are properly molton greaſe.

A fat horſe may have his greaſe melted by hard uſage, but ſeldom any other; and this muſt be done by hard riding or working in very hot weather; and then it is accompanied with a fever, reſtleſſneſs, ſtartings, tremblings, great ſickneſs, ſhortneſs of breath, and ſometimes with pleuritic ſymptoms. His dung will then be extreamly greaſy with ſcouring; his blood

will

will have the ſigns of an inflammation, that is, a thick fat ſkin over it of a buff-colour. The red or coagulated part is generally exceeding ſlippery; and the ſerum is ſlippery and clammy. He ſoon loſes his fleſh, and if he recovers he becomes hidebound for a time, with a ſwelling of the legs. Theſe, if not cured in time, will turn to the farcy or glanders, or an obſtinate ſurfeit.

To prevent theſe conſequences, the horſe ſhould bleed plentiful to relieve the inflammatory ſymptoms, which ſhould be repeated two or three days ſucceſſively; or till the buff coloured pellicle goes off the blood. He may alſo have a rowel in the breaſt; and when the working of the flanks begins to abate he may have another in the belly, and one on the inſide of each thigh. Emollient clyſters will be of great ſervice to cool the interſtices, ſuch as have been already preſcribed in other caſes; taking care that no irritating ingredients enter therein. With this caution this will abate the inflammatory ſymptoms and mitigate the fever, as well as bring away large quantities of greaſy matter. Inwardly he muſt have the following infuſion for a drink every other day, and the clyſter every day.

Take of bayberries bruiſed, camomile flowers and rue, of each an ounce; of ſaffron two drams; pour a quart of boiling water upon them, and let them ſtand twelve hours. Pour the water off and diſſolve therein two ounces of ſalt petre and two ounces of Epſom ſalt. Laſt of all, put in two ounces of ſpirit of wine and camphire.

Let the horſe have as much warm water, or water-gruel as he will drink. When the horſe has recovered his appetite, and the fever is gone off, he ſhould have two or three gentle aloetic purges, becauſe this diſtemper generally leaves a ſwelling of the legs behind it.

Take of myrrh, bay-berries, round birthwort, and gentian, of each a dram; of ſuccotrine aloes an ounce; of ſaffron two drams; of oil of amber a ſmall ſpoonful.

Make

Make these into a ball with solutive syrup of roses. This may be repeated once in nine days, as long as any symptom shall require it.

Of a BONE SPAVIN.

A Bone spavin is a hard swelling on the inside of the hock of a horse's leg, which is of the hardness of a bone.

That which begins on the lower part of the hock, is not so dangerous as that which appears higher between the two round processes of the leg bone. Likewise a spavin near the edge is not so bad as one that is more inward towards the middle, because it does not so much affect the bending of the hock. That which proceeds from a bruise, is a sort of a bastard spavin, and is not so bad as that which rises spontaneously. The spavins of colts are of a kinder nature than those of full-grown horses. In old horses they are scarce to be cured at all.

Whenever a fullness of the fore-part of an hock is discovered after hard riding, that is likely to turn to a spavin, you must endeavour by binding the cold charge round the part mentioned in *tumour, from accidents.* It must be renewed several times a day, and the disorder must be treated in all respects as is there shewn.

There are various methods, most of them very violent, for curing this disorder when confirmed, but none so good as the following composition.

Take an ounce of quicksilver and rub it with an ounce of Venice turpentine in a mortar till no part of the quicksilver can be seen; then mix it with four ounces of the green ointment of the shops: when they are well incorporated, put in a dram and a half of Spanish flies in powder,

der, and a dram of corroſive ſublimate, and two drams of oil of origanum.

This muſt be laid pretty thick upon the part, when the hair is cut off very cloſe, and the horſe muſt be tied up all day, and untied at night that he may lie down as uſual. Then he muſt have a pitch plaiſter, or a ſticking plaiſter over it, and bound on gently with a piece of tape or liſt.

When the bliſter has done running, and the ſcabs dry and peel off, the ointment may be applied again in the ſame manner as before. Theſe two applications in colts and young horſes, will make a perfect cure. But when the ſpavin has continued for ſome time it muſt be renewed five or ſix times with greater diſtances between, to prevent a ſcar or baldneſs. Once a fortnight or three weeks will be ſufficient.

The horſe muſt have moderate exerciſe between whiles, and now and then a doſe of laxative phyſic, as well as diureticks, with ſalt petre, and a decoction of lignum vitæ or guaiacum raſpings, to promote perſpiration. Their diet ſhould be only oats and good ſweet hay.

In an outward ſuperficial ſpavin, the horſe only grows ſtiff at firſt, and the ſpavin is plain and viſible to the eye; but when it is more inward and riſes more ſuperficial and flat, or when it puts out towards the hollow of the joint, and riſes upwards, it is very obſtinate and hard to cure. When it runs inward to the ſinouſities of the joints, it is generally incurable. In theſe caſes the horſe goes lame a conſiderable time, before the ſpavin appears outwardly.

This ſort ſeems to require very violent meaſures, but the gentle ones will have the moſt happy event, therefore it will be beſt to try the method recommended above; but when the ſpavins lie deep and run far into the hollow of the joint, a cauſtic ointment with ſublimate of arſenic is the likelieſt to ſucceed, becauſe theſe things eat deep, deſtroy their ſubſtance, and procure

cure a plentiful diſcharge, which perhaps will carry off all the remainder of the ſpavin. The ſame thing may be done by firing deep into the ſpavin. The iron ſhould be in the ſhape of a fleam, but rounded on the face, that it may go deep, and thick on the back to retain the heat. There will probably be a large effuſion of blood, but it may be ſtopt with a ſtyptic, or rather with the agaric of the oak, called touchwood or ſpunk, or with a piece of puff-ball.

The wound in ſome caſes may be half an inch deep, and an inch long, with two or three ſhort ſtrokes on each ſide, according to the largeneſs of the ſpavin. There will be no occaſion to renew the applications to ſtop the blood, if the method is uſed which was laſt recommended. Sometimes a gleet of viſcid water will diſtil from the wound, and the hock will ſwell, which may be removed with the fomentations mentioned in punctured wounds.

The firſt dreſſings may be turpentine ſpread on tow, which may be afterwards mixt with precipitate finely ground; that is, two drams of precipitate to an ounce of turpentine. The diſcharge may continue for two months, and yet afterwards come to a good colour and conſiſtence, and then the wound will ſoon heal.

In an old horſe, firing them round the hock is the moſt likely method to ſucced, ſo as to render him fit for ſome ſort of buſineſs, but a perfect cure is never be expected.

Of the CURB, OSSLET, JARDON *and* RINGBONE.

A *Curb* is a hard callous ſwelling, not unlike the ſpavin for conſiſtence: it riſes from the joining of the bones of the hock, on the hind part, and forms a pretty large tumour from below the heel of the hock, and running a good way on the back part of the hind leg,

leg, covers the *epiphyſis* of the inſtep bone, and in ſome gummy horſes ſpreads on both ſides the legs. It is attended with ſtiffneſs, and ſometimes with pain and lameneſs.

The cure may generally be performed with the bliſtering ointment preſcribed for the ſpavin. But if the curb is exceeding hard and obſtinate, it will be neceſſary to fire it with a thin iron, which is the quickeſt way to get rid of it. You muſt make one line in the middle from the top to the bottom, and then croſsways on each ſide like a feather. The lines muſt be pretty deep, and when they are made, a little mild bliſtering ointment muſt be laid over the part, and when it has done running, lay the ſtrengthening plaiſter of the ſhops over the ſore. If the horſe is full of blood and humours, it will be proper to purge after the cure with ſome gentle phyſic.

Oſslets are little hard ſubſtances among the bones on the inſide of the knee. They grow out of the gummy ſubſtances, which faſten thoſe bones together, when the horſe is young, and before the joints are well knit. When they are taken notice of in time, a little oil of *origanum* rubbed on the part every other day will effect a cure; but if they are of long continuance they muſt be removed by firing.

A *Jardon* is a ſwelling on the outſide of the hock proceeding from a kick or ſome ſuch accident. It is not dangerous becauſe it does not affect the motion of the joint; and if taken in time, may be cured with the repeated application of vinegar. But if it is inveterate and creates a deformity, the beſt way is to bliſter or fire; a mild bliſtering is generally ſufficient, unleſs the jardon is hard and inſenſible.

A *Ringbone* is a hard ſwelling on the lower part of the paſtern, which generally reaches half way round its fore part like a ring, whence its name is derived. It generally takes its riſe from the joining of the great and little paſtern bones, and cauſes a ſtiffneſs

neſs in the motion of the paſtern and foot; and when it grows hard and large, brings on a lameneſs, eſpecially when it falls down to the coffin joint.

When a ringbone appears on the foot of a well-ſhaped ſlender horſe, it is not ſo dangerous as to horſes that have large bones and are fleſhy in thoſe parts. For as the ſwelling is removed in theſe, a ſtiffneſs often remains. When it remains diſtinct in its proper place it is always more eaſily removed, than when it ſpreads downwards towards the coronet, on account of its affecting the coffin-joint. Sometimes it may be derived from that joint originally; and then the cure is uncertain. When a calloſity is found under the round ligament that coves the joint, it is impracticable. When it unites with the ligamentous ſubſtance that joins the hoof to the fleſh, it is apt to turn to a quittor. When it continues on the paſtern without running down to the coronet, it is eaſily cured, and in colts wears off ſpontaneouſly.

A genuine ringbone requires no other remedy beſides bliſtering, unleſs it be very hard, and then it will require bliſtering and firing. When there is a ſwelling which proceeds from the tendons, it is hard to be diſtinguiſhed from a ringbone, but by its being more painful; and to cure this, bliſtering alone is ſufficient, which muſt be renewed two or three times if the urgency of the ſymptoms require it. When a ſwelling of the legs attends the ringbone, it will be neceſſary to give him two or three purges, and in ſome caſes diureticks.

When the ringbone is hard and inſenſible like a piece of flint, there will be a neceſſity of firing it, becauſe all other methods are too mild, which muſt be done with a thin inſtrument, and the lines muſt not be above a quarter of an inch aſunder, and they muſt be croſſed obliquely, with the ſame diſtances; then lay a mild bliſtering ointment over it, which will be generally ſufficient for a cure. When it has done running,

Take

Take of the ſtrengthening plaiſter eight ounces; yellow roſin and bees wax, of each three ounces: melt them together with a little oil, and make a charge to be ſpread over the paſtern joint, covering the whole with flocks or the ſtuffing of an old ſaddle. The oil muſt be juſt ſo much as will keep the charge from being brittle.

In two or three days time when the charge is ſettled to the part, it will be proper to turn the horſe out to graſs. The method is to be followed when the ring-bone falls towards the coronet of the coffin-joint; for firing may be performed ſafely all over the coronet as well as cauſtic applications may be laid thereon without any danger. After which the charge muſt be applied, which prevents quittors and ulcerations under the hoof. Some draw out the ſoal by way of prevention, but it is ſeldom attended with ſucceſs.

Of SPLENTS.

SPLENTS are hard excreſcences which grow out of the ſhank bone, of various ſhapes and ſizes. Some are large and other ſmall; ſome are round and others have a ridge. When one riſes on one ſide of the bone, and another on the oppoſite ſide, ſome take them for one, and call it a *thorough Splent.* As alſo another that is fixed like a wedge between the back ſinew and the hard part of the bone, reaching acroſs from ſide to ſide.

Splents on the legs of colts and young horſes, ſeldom want a remedy, becauſe they will fall off themſelves, in proportion as the parts acquire a firmneſs. On the other hand, when the ſubſtance of a ſplent is become quite bony, it will be in vain to meddle with it at all; eſpecially when the ſkin is quite looſe over it. Splents never cauſe lameneſs unleſs they ariſe near the bending

bending of the joint, or are ſo placed as to preſs againſt the back ſinew.

At the time when ſplents firſt appear, the beſt method of cure is to rub the ſmall of the leg with vinegar or old verjuice, which generally ſtops their growth, and cauſes them to wear away inſenſibly. Some moiſt conſtitutions require purging and diuretic. When the ſplent is near the knee it muſt be treated as a bone ſpavin, by bliſtering and firing all over.

The cure of a ſplent between the back-ſinew and the bone is by boring it in ſeveral places with an iron that is not very hot, taking care not to hurt the back-ſinew, and avoiding the veins as much as poſſible; and then the horſe muſt be fired all over the back part of the legs like a feather, making the lines pretty cloſe together, but not deep. However, the beſt way is to try mild bliſters, which bid fair for ſucceſs, and will produce no deformity.

Of WINDGALLS *and* WINDY TUMOURS.

A *Windgall* is a flatulent or windy tumour, which yields to the finger being preſſed, and when it is removed, returns to itſelf. They are known by the riſings of the ſkin, and are plain to be ſeen.

Windgalls on the hind legs never cauſe lameneſs, but only a ſtiffneſs after riding. Thoſe on the fore legs render a horſe lame at firſt, which turns to a ſtiffneſs, attended with ſtumbling, or a diſpoſition to ſtumble. But a day's reſt will ſet them to rights again. Windgalls on the ſinuoſities of the hocks are always troubleſome, cauſe a deformity, and unleſs taken in time, will render a horſe incurably lame. They are but ſmall at firſt, but at length grow as large as a pullet's egg, and puſh out on each ſide the hollow of the hock. Flatulent ſwellings above the knee, always cauſe lame-

neſs.

neſs. When under the fore part of the knee, in the interſtices on both ſides of the joint, they are dangerous.

Windy ſwellings in the interſtices of the muſcles of the hips and thighs, though blown up like little bladders, ſeldom cauſe lameneſs, and are eaſily cured. Windgalls that proceed from a natural weakneſs of the limbs are incurable, unleſs the conſtitution alters for the better.

When horſes ſwell about the paſterns, with a fulneſs on each ſide the back-ſinews, we may conclude that windgalls are coming on; and then bathe the part twice a day with vinegar. Likewiſe the following fomentation may be uſed:

Take of oak bark an ounce; of pomegranate rind half an ounce; of the water of a ſmith's forge three pints; boil them to two pints, and then add two drams of roch allum. Soak flannel in this decoction, and bind it about the part while the horſe ſtands in the ſtable.

When the windgalls are grown large, and feel like kernels, or relaxed ſinews, and are on the hind legs, the beſt way is not to meddle with them, for a travelling horſe will never grow lame with them. But when they are ſeated on the fore legs, and make a horſe trip and ſtumble, the cure may be attempted by mild bliſters, which, by often repeating, will draw out the humour, diſperſe the wind, and remove them by degrees. This always takes off a windgall about the fetlocks, and often the windy ſwelling about the hocks; but then it has been often repeated, at ſuch times as a working-horſe has been at reſt from his labour: a little of the bliſtering ointment ſhould be laid on every other day for a week, which will cauſe a plentiful diſcharge; and when the bliſters are dried up, the horſe may go to his uſual work, for three weeks or a month, and then repeated when the owner can allow him leiſure. Firing is the moſt expeditious way; but then, it never makes a perfect cure, and leaves a ſtiffneſs on the joint; however, it ſtops the encreaſe of the ſwelling,

and renders a horſe more uſeful. The bliſtering ointment ſhould be the ſame as is recommended in the blood ſpavin.

Puffs and windy ſwellings about the joint of the knee, which proceed from kicks or other external hurts, are beſt repelled by aſtringents, ſuch as the ſtrengthening fomentation, or decoction before-mentioned; where, inſtead of the ſmith's forge water, it may be boiled in vinegar, but I know not whether it will be better or not. If this will not do, then bliſter, for they ſhould be removed as ſoon as poſſible: but firing with a ſmall iron is the ſpeedieſt way, making the lines as near together as poſſible. Then cover the knee with the ſtrengthening plaiſter, as before-mentioned.

Windy ſwellings between the interſtices of the muſcles of the hips, are to be cured by an inciſion, and then bring the wound to a ſuppuration; or waſh the place with equal parts of white wine and vinegar; for when the humours are diſcharged, the wound will ſoon heal. Theſe tumours are not dangerous, and will often yield to repellents; therefore they may be tried firſt.

Of the BLOOD SPAVIN.

A *Blood ſpavin* is properly a *varix*, or dilatation of a vein. It is a ſoft, unequal, knotty, indolent tumour, yielding to the touch, and runs along the inſide of the hock. The moſt remarkable part of the ſwelling is no bigger than a large walnut, and is generally attended with a weakneſs and lameneſs of the hock.

This diſeaſe, when recent, may be cured by remedies that are cooling, aſtringing, and drying, in which compreſſes may be dipped and bound on the part, or flan-

flannel ſoaked in the ſame, and bound on it hot. This muſt be repeated ſeveral times a day.

Take of oak bark two ounces; pomegranate rind and roch allum of each an ounce; boil them in two quarts of vinegar, or ſmith's forge water to three pints.

When this method is ineffectual, the vein muſt be taken up by opening the ſkin the whole length, and then paſſing a crooked needle underneath the vein, a little way below the ſwelling; the needle muſt be armed with a double thread waxed to tie up the vein. The ſame operation muſt be performed a little above the ſwelling, and the turgid part of the vein will come off by digeſtion, when the ligature rots off. The ſore ſhould be dreſs'd with a digeſtive of turpentine, honey, and ſpirit of wine, which is ſofter and better than oil of turpentine. When it is well, the horſe ſhould be uſed very gently, till he recovers his ſtrength.

When beſides the blood ſpavin there are puffs and flatulencies in the hocks; in young horſes they will give way to the above fomentation; but when they are obſtinate, the veins muſt be taken up as before, and the puffs cured by bliſtering and firing, as has been before taught.

Of WENS *or* ENCYSTED TUMOURS.

WENS may ariſe in any part of a horſe's body, and are always contained in a *Cyſtis* or *Bag*, which advances by very ſlow degrees, and the bag increaſes in thickneſs as the wen in bulk. In men they have different appellations, according to the humour or matter they contain; but in horſes this diſtinction is needleſs, becauſe they do not require a different method of cure.

When the wen has a ſmall root and is pendulous, the beſt way is to tie a wax'd packthread round it, which muſt be made tight by degrees, till the wen falls off. Afterwards it may be healed with a mixture of turpentine, honey, and ſpirit of wine. When the wen is broad and tied down with ſeveral cords and ſtrings, the beſt way is not to meddle with it. But if the wen is free from theſe and is thought curable, it muſt be either cut out or opened with a cauſtic. This done, it muſt be dreſt with dry tow, and afterwards with the common digeſtive. If proud fleſh ariſes, it muſt be dreſſed with turpentine and red precipitate, in the proportion of an ounce of the former, to a dram of the latter. When the proud fleſh is very rebellious, you may ſtrew the precipitate over it alone, or mixt with burnt allum, in equal quantities. If the ulcer is cancerous, it may be touched with a feather, dipt in the butter of antimony.

Horſes have ſometimes tumours on the heel or hock, which come to a conſiderable bulk, but are ſeldom painful unleſs inflamed or ſuppurate. Theſe differ little from encyſted wens, and have much the ſame contents, ſome call theſe *bog-ſpavins*. Thoſe on the elbow or heel of the hock are ſeldom cured without leaving a blemiſh or calloſity. If they are diſcovered at firſt, the beſt way of curing them is by repellents; but when the veſſels are broken, and the fluids extravaſated, they may be brought to ſuppuration by ointment of marſh-mallows. But if the ſkin is thick, they may be opened with a knife, on the moſt depending part. The ſame caution ſhould be obſerved, with regard to tumours on the proceſſes of any of the bones, eſpecially on the joints.

When the matter contained in theſe tumours is all diſcharged, the abſceſſes muſt be dried with ſoft doſſils, dipt in a mixture of turpentine, honey, and tincture of myrrh; and then there remains nothing to do, but to bathe the part once a day, with equal parts of wine and

and vinegar, with an eighth part of oil of vitriol, dropt into it very leiſurely.

Theſe ſorts of ſwelling on the hocks, often contain a thick paſte, and ſometimes a thin clammy water, which Dr. *Bracken* takes to be the ſynovia of the joints, and has given it the name of the *bog-ſpavin* before mentioned. He cured a colt of his own, by opening the tumour with an inciſion knife or ſcalpel; firſt ſeparating the ſkin from the tumour, taking care to avoid any vein as much as poſſible; then he opened the cyſt, and a large quantity of brown glairy matter ran out. Afterwards he put in a powder made with calcined Roman vitriol, one third part of burnt allum, and a little bole armoniac mixt together. This conſumed the cyſt or bag in three or four days, by repeating it three or four times, and brought it away in ſloughs or ſkins. The wound was healed with a warm digeſtive of ointment with turpentine, honey, &c. But this was not brought about without a ſwelling of the joints, which was forwarded with warm fomentations, with flannel ſqueezed out from a decoction of roſemary, wormwood, ſavin, pennyroyal, thyme, juniper and bayberries bruiſed. This brought down the ſwelling, and the wound to a good condition.

Of WOUNDS.

A Wound is a ſolution of continuity made in a ſoft part by any external cauſe. All inſtruments, or any thing elſe that is capable of making a diviſion in any ſuch part, may be the cauſe of a wound.

Some things may do it by pricking, others by cutting, others by bruiſing, others by tearing, and others again by burning. Thoſe inſtruments that thus divide any part, will make wounds of different kinds, with reſpect to their ſize, figure, and direction. There

are many other diſtinctions, of which the eye is the beſt judge, and therefore I ſhall omit them all as ſuperfluous.

A ſimple wound made in the ſoft parts, requires nothing but its reunion. A compound wound is attended with ſome accident, which requires a different treatment; as ſuppoſe a hurt of the bone. A wound may be attended with a hæmorrhage, pain, inflammations, a fever, convulſions, &c.

Pain may be cauſed by the imperfect diviſion of the tendinous, nervous, and membranous parts; by a foreign body left in the wound, and by the falling of ſome humour on a membranous part. A *hæmorrhage* may proceed from the opening of a large vein or artery, and is of a bad conſequence, when it is ſeated in a part that no application can reach. *Convulſions* may be cauſed by hurts of the nervous parts, and from the dividing of an antagoniſt muſcle. It may alſo proceed from a great loſs of blood. A *palſy* may proceed from the diviſion of the nerve belonging to any particular part, or from the cutting in two of a muſcle or its tendon. An *inflammation* may be produced by any thing that hinders the free circulation of the blood in the ſmall veſſels. This in wounds may have ſeveral cauſes. A *fever* is the conſtant attendant of violent pain, and may alſo happen when the wound is about to ſuppurate.

By the ſight we may diſcover the external greatneſs of a wound, and the loſs of ſubſtance; and by the finger or a probe, we may diſcover the direction; we may judge of the extent of a wound, by the hurt of the action of any part; and ſometimes from the excrements that proceed from the wound.

The *prognoſtics* of wounds may be taken from their cauſe, their ſituation, and their eſſential difference. Thoſe of the teguments and fleſhy parts, are leſs troubleſome than thoſe of the membranous, aponeurotic and nervous parts; as for inſtance, the joints. Wounds

of

of the external parts are leſs dangerous than thoſe of the internal. Thoſe of the principal trunks of the veſſels, than thoſe of the branches, where the hæmorrhage may be readily ſtopt. Wounds in the internal parts are very dangerous.

Slight wounds are of the ſkin, fat, and muſcles, for they require nothing but their re-union. *Grievous wounds* are thoſe of the membranes, aponeuroſes and tendons, particularly the joints, as before taken notice of. *Mortal wounds* are thoſe of the veſſels and internal parts: wounds of the heart are almoſt always mortal: wounds of the lungs are ſometimes curable.

Wounds made with a cutting inſtrument, are not ſo bad as thoſe with a ſmall ſword. Thoſe made with a blunt weapon, are worſe than either of the former. When a wound in the head is attended with convulſions or the ſtaggers, it ſhews the brain is hurt; or, if the ſkull is fractured, and any part of it depreſſed, the ſame ſymptoms will happen; both which caſes are commonly mortal.

Wounds have four ſtages: the *firſt* is while it bleeds; the *ſecond* is while it is ſuppurating; the *third* is while the fleſh is growing again; and the *fourth* is the time it takes in healing.

The *firſt* ſtage is when the lips of the wound are open, and get at a diſtance from each other, by their own proper elaſticity; whence proceeds the hæmorrhage and pain. Though gun-ſhot wounds ſeldom bleed. When the diviſion is ſimple, and without loſs of ſubſtance, we have nothing to do but ſtop the bleeding, eaſe the pain, and bring the lips of the wound together. Thus theſe have but one ſtage. Wounds with loſs of ſubſtance may bleed for hours, unleſs prevented by a proper dreſſing; during the firſt five or ſix days, it grows moiſt by little and little, and emits a reddiſh ſerum, which becomes more plentiful as it approaches the ſecond ſtage. The approach of the ſuppuration is uſhered in by feveriſh ſymptoms,

which are proportioned to the largeneſs of the wound. The ſwelling will go down in proportion to the increaſe of the ſuppuration, and ceaſes entirely when this is quite finiſhed. The remains of the divided veſſels, and the ſtagnating juices, are the cauſe of the ſuppuration.

In the *third* ſtage the nutricious juices of the part, can eaſily come as far as the lips of the wound, and cover the extremeties of the divided veſſels, to repair the loſs of ſubſtance. In the *fourth* ſtage, when the wound is filled up with new fleſh, the ſurface of the wound begins to dry from the edges, and form a pellicle called a cicatrix, which is different from the teguments of the reſt of the body.

Nature carries on the cure of a wound in the manner juſt mentioned, and *art* removes all impediments out of the way, by bringing the lips together by particular operations, by promoting the ſuppuration, by removing any thing that may prevent the regeneration of fleſh, and promoting the formation of a cicatrix, and by preventing all accidents as much as poſſible, that may retard any of the intentions of nature.

The cure of a wound muſt be begun by the removal of all the ſtrange ſubſtances, ſuch as clotted blood, earth, ſand, &c. which would hinder the cloſing of the lips of the wound, and conſequently hinder their reunion. The lips of theſe ſorts of wounds are to be brought together with the fingers, and they are to be kept in that ſituation, by ſuch methods as the ſituation of the wound will allow, as bandage, agglutination, and ſutures. When the wound is not deep, and happens on the limb, a bandage will ſerve to keep the lips together, which muſt be left to the ingenuity of the operator. When it is in the parts about the head, the dry ſuture will be ſufficient. When the wound is deep in the muſcular parts, a real ſuture muſt be made uſe of.

The

The ſuture is an operation, which, by the means of a needle and thread, or two or three together, bring together the lips of a wound, and keep them together till they are perfectly united. The needle muſt be crooked, and of a ſize ſufficient to compaſs the wound: with this you muſt enter the fleſh at a diſtance from the lips, almoſt equal to the depth of the wound, or the ſtitches will be apt to cut through the fleſh, or when the lips are drawn together, there will be a hollowneſs left at the bottom, where matter may lodge and do a great deal of miſchief. Waxed thread is better than ſilk, becauſe it rots more eaſily, and is not ſo apt to cut. One ſtitch in the middle is ſufficient for a wound of two or three inches long; and where wounds require more ſtitches, they may be at an inch diſtance from each other; or, if the wound be deep, ſomewhat farther.

Horſes are ſo apt to burſt the ſtitches when they get up or lie down, that this operation ſhould be omitted, unleſs the wounds are large and gaping, or lacerated and torn. Wounds that enter the cavity of the body, ſhould always be kept open with a tent or doſſil, armed with a digeſtive of turpentine, honey, and the tincture of myrrh, or the tincture of myrrh and aloes alone.

The tents or doſſils ſhould be ſoft, looſe, and very ſhort, when they are put in the wounds of the fleſhy parts, which is not convenient to ſtitch up; for when they are long they are apt to breed ſinuous ulcers, and foul the bones and ſinews in thoſe of the joints. Indeed it would be well if theſe ſort of things be always avoided, becauſe they hinder in ſome meaſure the filling up of the wound with good fleſh, and more ſo when they are crammed in hard; beſides cauſing other bad accidents.

When a wound is deep, and does not penetrate inward to the bones, it will be beſt to make a counter opening, to prevent an abſceſs; but if it penetrates obliquely downward, a bandage will be proper, if the part

part will allow it to be uſed. When this cannot be done, it will be proper to uſe an injection with tincture of myrrh and aloes. But if the abſceſs is already made, and has continued ſome time, the injection muſt be of a ſharper nature, ſuch as this which follows:

Diſſolve half an ounce of Roman vitriol in a quart of water, and pour the water gently off into a large bottle. Then add half an ounce of camphorated ſpirit of wine, with the ſame quantity of ſharp vinegar; ſhake them together, and then add two ounces of the Egyptian ointment: ſhaking it as before.

Four ounces, more or leſs, of this, according to the capacity or depth of the abſceſs, ſhould be injected with a ſyringe that has a pipe that will reach pretty near the bottom, when the wound will not admit the body of the ſyringe itſelf. As they ſeldom will thoſe that are large. When this has leſſened the diſcharge, and brought it to a better conſiſtence, it may be uſed once a day, and then once in two or three days. The matter ſhould firſt be ſqueezed out from below or upwards, when the ſituation of the abſceſs renders it neceſſary.

Contuſed wounds of the joints ſhould always have a pledgit laid over them, ſpread with the common digeſtive, and bound with a roller of broad tape or liſt. Before which, and when the wound is open'd, bathing it with ſpirit of wine will be very proper. When you perceive any little abſceſſes lie under the ſkin, they muſt be ſnipped with the ſciſſars to let out the matter, to prevent its corroding the ligaments.

In all the joints, but more particularly the knee, great care muſt be taken to prevent inflammations and fluxions; and when they are already begun, theſe ſymptoms may be abated by the following fomentation.

Take the tops of lavender, roſemary, thyme, ſage, camomile flowers, wormwood, bayberries, and juniper-berries, of each an ounce; of water two quarts and a pint: boil them a little while, and then ſtrain off the de-

decoction ; to which add a pint and a half of common proof ſpirit.

Some put two ounces of pot-aſhes, and as much ſal-ammoniac, into a decoction of this kind ; but I can't pretend to ſay what great advantage it can be of. This fomentation is good in all bruiſes and punctures of the legs, eſpecially where the wound is dry, and does not run : and it will be the more neceſſary, becauſe theſe ſort of accidents are often attended with the moſt violent pains. This liquor muſt always be made hot at the time of uſe, and a flannel cloth muſt be dipt in it, wrung out, and applied five or ſix times, one after another, when they begin to cool. This muſt be repeated morning and evening, till the wound begins to digeſt ; and after the firſt ſmall appearance of matter the danger is generally over. This method is likewiſe exceeding uſeful for the ſwelling of the plate-vein after bleeding, and to ſtop the mortification ſometimes brought on by rowelling.

The cure of ſmall ſimple wounds is eaſily performed by laying on dry lint firſt, and then tow upon that ; or the lint may be dipt in *friar's* balſam, and laid on, and then if there is any bleeding it will ſoon ſtop it. When a large veſſel is divided, and the bleeding or hæmorrhage is great, it will be beſt to apply ſlices of puff-ball, or agaric of the oak, called touch-wood or ſpunk, and nothing elſe will be wanted for that purpoſe.

In *gun-ſhot wounds* the bullet muſt always firſt be extracted if poſſible ; but when it has paſſed quite through the limb, it ſeldom wants any thing but the pouring of ſpirit of wine into both orifices, and then a ſhort tent armed with turpentine, honey, and tincture of myrrh. It ought always to be remembered, that ſpirituous medicines and bathing with them, always agree beſt with theſe ſorts of wounds. Profuſe bleedings, if the veſſels can be come at, may be ſtopped as above. If not, inject the royal tincture, to be had at the

the chemiſts in London, with a ſyringe that has a pipe of ſufficient length. Both orifices muſt be kept open, till the wound is filled up with ſound fleſh. When there are any ſplinters of the bone, or it is become foul, the wound muſt be enlarged with a ſpunge tent, or an inſtrument. But then theſe caſes are always dangerous.

When there is a ſymptomatic fever, it muſt be cured with bleeding, laxative clyſters, ſcalded bran and water gruel.

Burns of gun-powder may be cured by binding common ſalt thick on the part, and letting it continue for twelve hours; this will either prevent a bliſter, or diſpoſe it to heal ſoon. And ſo will bathing it with rectified ſpirits of wine for an hour or longer, and afterwards once a day. If the burn is very great, make a poultice with ſalt, ſoap, and ſpirit of wine, and apply to the parts. When it is attended with a great ſwelling, lay on a poultice made with milk and elder-flowers. When there is proud fleſh, mix two drams of red precipitate with an ounce of yellow baſilicon to bring it down.

Of ULCERS.

AN ulcer is a ſolution of continuity in a ſoft part; for when it affects the hard parts, that is the bones, it is called a caries. It may ariſe from an internal as well as external cauſe, and generally ſucceeds an abſceſs.

With regard to their dimenſions they are diſtinguiſhed into great and little, deep or ſuperficial. With reſpect to the place, if they are deep, they are called cavernous; when they are attended with a carnous excreſcence, they are termed ulcers with an *hyperſarcoſis*. When they are ſurrounded with hardneſs and calloſities, they

they are called callous ulcers; when the ulcer is inveterate, ſinuous, and callous, it is termed a fiſtula. They are alſo called varicous when attended with varices of the veins.

When they are joined to any other diſorder, they have their name from thence; thus they may be ſaid to be inflamed ulcers; painful, tumified, or ulcers with a caries. With regard to the matter that flows from them, they may be ſanious, ſordid, virulent, or verminous. The ſanious ulcers abound with a ſeroſity or *ichor*. Sordid ulcers ſend forth a thick ſanies of different colours, as black, livid, aſh-coloured, and the like. A virulent ulcer is full of a limpid corroſive matter. The verminous ulcers produce animalcules, or ſmall worms.

The cauſes from whence they proceed, give a different denomination to ulcers. Thoſe that ſucceed wounds and open abſceſſes, and whoſe cauſe is only local, are ſaid to be well-conditioned or benign. When they proceed originally from any diſorder of the blood, they are called malignant. Cancerous ulcers are of the very worſt kind.

The cauſes of ulcers are of two kinds; the one internal, the other external. The internal proceed from a depravation of the nutricious juices, or they are hindered from flowing to the extremities of the veſſels, and without theſe the ulcers can never be incarned and cicatriſed. Remedies deſigned only to conſume fungous excreſcences continued long on wounds, or after the opening of an abſceſs; dreſſings performed with an improper *apparatus*, ſuch as tents, doſſils, pledgits, canulæ, &c. and other things, improperly applied, may be the external cauſes of ulcers.

Ulcers attending particular diſtempers already mentioned, I ſhall now paſs by; varicous ulcers are known by the varicous dilatations of the veins round about them. A ſanious ulcer may be diſtinguiſhed from others, by a large quantity of ſanious matter which co-

colours the compreſſes black. A fiſtulous ulcer is generally ſtraiter at the entrance than at the bottom, and the ſides are hard and callous; verminous and fungous ulcers are evident to the ſight. A cancerous ulcer has hard elevated reverted edges, and is ſoon filled up with fungous ſanious fleſh, and a ſtinking corroſive *ichor* proceeds therefrom, which eats by degrees into the fleſh, and forms ſinuoſities on every ſide. The veins of the tumour are dilated and varicous, and the ulcer itſelf has a very diſagreeable aſpect.

The prognoſtic ſigns of ulcers are taken from their cauſes, and the parts in which they are ſeated; the more difficult it is to determine the cauſe of an ulcer, the more dangerous it is: ſimple ſuperficial ulcers are attended with little or no danger, unleſs the blood is greatly vitiated. But when the edge riſes above the ſurface, and grows callous, they are not ſoon levelled, in ſuch a manner as to be fit for cicatrization. An ulcer with a caries of the bone is much more difficult to manage than a ſimple ulcer; and this is more or leſs, according to the place where the ulcer is ſeated, and to the good or bad ſtate of the blood; as well as the cauſes from whence it proceeds. Cavernous ulcers are not ſo dangerous as ſinuous ulcers, eſpecially when the ſinuoſities terminate near a joint. Fiſtulous ulcers are ſtill more dangerous, becauſe they are often ſeated near the joints and other dangerous places, which render horſes of little uſe when the cure is compleated. Malignant or putrid ulcers are always dangerous, becauſe they are a ſign of a vitiated blood; and when they have a carrion ſmell, with a large diſcharge of ſtinking ill-coloured matter, they generally end in a mortification. Cancerous ulcers are the worſt of all, only they do not terminate ſo ſuddenly, but will ſuffer a horſe to languiſh a conſiderable time before they kill. Varicous ulcers, which are ſeated among the blood-veſſels, are ſpungy, and hard to digeſt, being full of a bloo-

bloody *ichor*. Theſe are very difficult to cure. But a ſimple varicous ulcer may be cured with great facility.

The cure of ulcers in general need not be largely inſiſted on, becauſe, beſides thoſe already treated of, the poll-evil, fiſtula on the withers, the glanders, and quittors will be mentioned in diſtinct ſections.

A ſimple ulcer needs only be brought to the ſtate of a clean wound, and then it may be treated as ſuch, by incarning and cicatrizing applications. In order to perform this, it will be neceſſary to lay the ulcer open if there be occaſion, that its whole ſurface may be cleanſed and deterged. This may be done with tincture of myrrh and aloes, and with yellow baſilicon, and red precipitate. Alſo with two ounces of turpentine and honey, mixt with a dram of verdigreaſe. When the ulcer is deterged, it may be incarned with lint alone, provided the matter is laudable; if otherwiſe, a vulnerary balſam may be ſpread on lint, and applied. But no tents muſt be uſed, becauſe they retard the cure, by preventing or deſtroying the ſprouting granulations of the good fleſh, or produce calloſities. Deep ulcers ſhould be kept open by filling them with lint; leſt the lips ſhould cloſe too ſoon, and prevent the dreſſings from reaching the bottom. When the cavity is filled up with good fleſh, it will be beſt to cicatrize with dry lint or *friars* balſam. If there ſhould be any inequalities, they ſhould be taken down with blue vitriol, powder of myrrh, burnt allum, red precipitate, &c.

When proud fleſh is to be conſumed, four ounces of yellow baſilicon, to half an ounce of red precipitate, is a good proportion; but it may be made ſtronger or weaker juſt as you pleaſe.

Fiſtulous ulcers, beſides being conſiderably deep, have generally a calloſity, which muſt be removed before they can be cured. This muſt be performed with a knife or eſcharotics. The beſt of this laſt kind, tho' known to few, if any, is verdigreaſe ground with gum wa-

water, and made up into a tent, that may fill the cavity of the fiſtula, and in three or four days time you may take it out, and it will bring out the callus along with it, and a laudable matter will be left behind. But in order to perform this, the orifice muſt be firſt inlarged with a ſponge tent. Or, if you chooſe, and it is practicable, lay open the *fiſtula* to the bottom with a knife; then make a mixture with equal parts of turpentine, myrrh, the yolk of eggs, and Egyptian ointment, and incorporate them well together. By repeating this dreſſing at due intervals, the bottom will be deterged, and then the parts muſt be brought together, and united by compreſſion gradually from the bottom upwards.

In ulcers attended with a caries of the bone, the opening muſt be enlarged, and an exfoliation muſt be procured, by applying a bruſh pencil dipt in a ſolution of quickſilver in *aqua fortis*. Or the lamella, or outward part of the bone, may be perforated with a triangular *terrebra*, ſo as to make many ſmall holes, which muſt be dreſt with dry lint or balſam, by which means the repulluating veſſels of the ſound part of the bone will grow up thro' the holes; throw off the dead ſcale, and renew the perioſteum. This is better than the raſpatory, or the cautery. If the caries reach the marrow, it muſt be perforated with a trepan; if the caries is on the ſpungy head of the bone in the joint, it is incurable with regard to the horſe, for then the limb muſt be cut off.

Putrid ulcers are always accompanied with a cacohymy of the fluids, and therefore proper internals muſt be given at the time of the cure, to deſtroy the malignity of the humours: ſuch as an equal quantity in weight of cinnabar of antimony and gum guaiacum; an ounce of which muſt be given every day. If old ulcers are dried up, they will either break out in another place, or the matter of them will fall upon ſome noble part, which may prove fatal; therefore there

there ſhould always be a rowel to drain the matter off that outlet, otherwiſe it is beſt to let it alone. Beſides theſe things, the horſe ſhould have gentle laxative purges between whiles, with warm water gruel, and feeds of ſcalded bran.

When the callous lip of the ulcers are very obſtinate, three ounces of quickſilver ſhould be killed with a ſufficient quantity of balſam of ſulphur, and then mixt with half a pound of gum ammoniac or diachylon; a plaiſter made with this ſhould be laid on the ulcer, and renewed morning and night. The ammoniac is beſt, becauſe it is more emollient. Then make inciſions in the callus, ſo as to penetrate through their whole thickneſs; then employ more of the ſame plaiſter, laying it on the naked inciſed lips. The ſcarifications are to be repeated every third or fourth day till they are quite deſtroyed, not forgetting the mercurial plaiſter.

Varicous ulcers muſt be amended with an aſtringent decoction of oak bark, pomegranate rind, of each an ounce; roch allum and white vitriol of each half an ounce; boiled in three pints of vinegar to a quart; the ulcers muſt be fomented with this twice a day. This will thicken the diſcharge, and at length dry it up. Afterwards lay on the ſtrengthening plaiſter of the ſhops, to contract the coats of the veins that fed the ulcer.

Cancerous ulcers ſometimes attend the farcy and the glanders; and ſometimes there are cancerous warts, which degenerate into true cancers. Sometimes rowels likewiſe put in near the glandulous parts, will turn to the ſame kind of ulcers; then they leave a knotty uneven ſwelling, with a ſtinking ichor, which increaſing will turn to a true cancer and kill the horſe. Theſe ſorts of ulcers are only to be cured by extirpation, and then there is no warranting the ſucceſs, and therefore the leſs there is ſaid about them the better; that none may be tempted to throw away their money for an operation that may only haſten the death of the horſe.

Of the GLANDERS.

THE glanders are known by a running of matter from the noſtril, which is either yellow, or greeniſh, or tinged with blood. When the diſeaſe is of a long ſtanding; the matter turns blackiſh, and becomes very ſtinking. It is always attended with a ſwelling of the glands, or kernels under the jaws.

La Foſſe, by examining the carcaſes of horſes, and making a diligent ſcrutity into the ſeat of the diſeaſe, has found it to be local, and placed in the pituitary membrane, which lines the partition along the inſide of the noſe; the cavities of the cheek-bone on each ſide of the noſe; and the frontal cavities above the orbits of the eyes, while every other part of the body may be free from any diſorder.

There the glanders are properly an inflammation of the pituitary membrane, and may be diſtinguiſhed into three different periods, the beginning, middle, and the end. The firſt is called the *incipient glanders*; the ſecond the *confirmed glanders*; and the third the *inveterate glanders*. The three principal ſymptoms are the inflammation of the pituitary membrane, the ſwelling of the glands under the jaws, and the running, which gives the name to the glanders. The inflammation cauſes the ſwelling of the glands; and the ulceration of the glands cauſes the running of the noſtril on the diſeaſed ſide.

La Foſſe, in order to be certain that he had found out the ſeat of the diſeaſe, injected a certain liquor into one of the noſtrils of a ſound horſe, which inflamed the pituitary membrane; this was attended with a ſwelling of the lymphatic glands on the ſame ſide; this inflammation produced ulcers, which cauſed a running of the noſtril as in the glanders. An injection into the other

other noſtril of the ſame kind, produced the like ſymptoms on both ſides.

He affirms that theſe lymphatic glands do not empty themſelves into the mouth as in men, but into the noſtrils; and the matter of the ſimple glanders is not ſtinking, as is commonly aſſerted, unleſs ſome other diſtemper, as the ſtrangles, or the farcy, has affected the horſe at the ſame time.

This is an infectious diſeaſe, and horſes often catch it from one another: beſides, any thing that inflames that membrane will bring on the glanders. Thus if a horſe after ſwimming is left in the cold, or if his noſe is expoſed to the wind, in two hours time the glands under the jaws will be ſwelled, and the noſtrils filled with a viſcid matter.

Therefore to prevent theſe diſeaſes from ſudden cold, the horſes after being heated ſhould be led about in the hand that they may cool gradually; their noſes ſhould be covered to hinder the ſudden ingreſs of the cold air, and their tails ſhould be turned towards the wind. When the glands of horſes have been affected for ſome time, though there is no cough, and he is poſſeſſed of every other ſign of health, yet he may properly be ſaid to have the glanders. In this caſe emollient decoctions muſt be thrown up the noſtrils, ſo as to reach the frontal ſinuſſes or cavities, and to repeat it three times a day for a week. If the running continues after this hath been performed, it will then be neceſſary to uſe fumigations, which are the ſmoke of medicines thrown upon a red hot iron.

For this purpoſe *La Foſſe* has made uſe of a kind of box with a tube fixed thereto, which may be conveyed up the noſtril of a horſe, and will convey the vapour to the intended part.

The glanders in horſes has a very great reſemblance to the ozæna in men, though in theſe the cauſe is generally more virulent as proceeding from the French diſeaſe: at firſt the ulceration affects the internal mem-

brane of the noſtrils, and then it extends itſelf by degrees into the ſinuſſes of the ſkull and cheek bones, producing an incurable caries. When this happens in the cavity of the upper jaw over the grinding teeth, it is called *ozæna in antro.*

I mention this diſeaſe in men, to ſhow what medicines are moſt likely to ſucceed in the glanders in horſes, becauſe ſimilar diſorders require a ſimilar treatment; eſpecially as *La Foſſe* has been quite ſilent about it. Therefore inwardly a horſe ſhould have plenty of the decoction of guaiacum wood, with now and then two drams of *mercurius dulcis*, made into a ball with any conſerve and liquorice powder. For an injection, mix three grains with green precipitate, with half a pint of ſpring water. The fumigation may be made with cinnabar thrown upon a red hot iron, and conveyed into the noſtrils with a pipe after *La Foſſe's* method, though it had been practiſed upon men long ago. The cinnabar upon the hot iron muſt be ſtirred now and then with the end of a pipe to make it all evaporate.

But we may obſerve that all liquids that are uſeful to deterge ulcers will be proper for injection in this caſe, while the diſeaſe is recent. But the beſt injection that I know of to abate the corroſive ſharpneſs of the ulcerating humour, is that which follows.

Take quickſilver and balſam of capivi, of each half an ounce: and when they have been rubbed together ſo long that the quickſilver entirely diſappears; then add the yolk of an egg, which being intimately mixed with the balſam, add by degrees half a pint of ſpring water.

Sometimes lime water with mercurius dulcis may alſo ſerve for the ſame purpoſe.

Gibſon, though he was miſtaken in thinking this diſeaſe was cauſed by a ſcrofulous diſpoſition of the glands has ſaid enough to ſhew the true ſeat of the diſeaſe, and its catching nature, ſhews that there is ſomething more in it than can be attributed to diſorders from colds; and therefore it cannot be of ſo innocent

nocent a nature even at firſt as *La Foſſe* would have us believe. *Gibſon* has obſerved from diſſections that the glands on the inſide that in their natural ſtate are exceeding ſmall, and covered with a fine delicate membrane, are all greatly enlarged; inſomuch that the paſſage of the upper part of the noſe was choaked up as if it had been with a piece of ſpunge. That the *Septum Naſi*, and all the bones and cartilages were turned carious and ſpungy; in which it reſembles exactly a confirmed ozæna in men.

In ſome caſes the injection will not go high enough to reach the cauſe of the diſorder, and then the beſt way will be to take out a bit of the bone with a trepan; after which the cure may be compleated by injections in the ſame manner as the *ozæna in antro*, which may be with tincture of myrrh mixt with honey of roſes. But care muſt be taken that the perforation does not grow up till the cure is completed. Likewiſe any of the former injections may be uſed when judged to be neceſſary. This is the only method of cure when the glanders are inveterate.

All runnings at the noſe are not the glanders, though often ſo called. One may proceed from an ulceration of the lungs, and then it may be called the *pulmonary glanders*, and then it is a whitiſh liquor coming away in lumps or grumes. The ſecond ſort may be called the *waſting glanders*, and it ſeizes horſes at the end of diſeaſes cauſed by hard labour, and affects the lungs. Then there comes away a whitiſh humour tinged with yellow; he eats and drinks pretty well, but continues to loſe his fleſh.

The *Strangle Glanders* throws humours upon the lungs, which nature is not able to diſcharge, and forms abſceſſes; theſe humours are carried out through the noſtrils, and by coughing through the mouth. The *Farcy Glanders*, which affects both the lungs and the pituitary membrane with a corroſive humour, is ſtill worſe than any of the former. The three firſt are not infectious, but this laſt is.

A fifth ſort is a diſcharge which ariſes from ſudden cooling, after being over-heated, and may turn to the true glanders as *La Foſſe* obſerves. The laſt kind that he mentions is the diſcharge occaſioned by the ſtrangles; for though this diſeaſe commonly goes off by an abſceſs which breaks; yet ſometimes it is diſcharged by the noſtrils, with a ſhort cough and a ſlight inflammation of the jaws. Though ſometimes the noſtrils will run without any ſwelling at all. But in the cure of all theſe different glanders, which are falſely ſo called, except the farcy glanders, regard muſt be had to the principal diſeaſe in the cure; of which we have already treated.

Of the POLL-EVIL.

THE poll-evil is an abſceſs near the poll of the horſe, formed in the ſinuſſes, noll-bone, and uppermoſt *vertebræ* of the neck. It is known by the ſwelling of the poll, which is ſometimes ſo large that it reaches down towards the vives, and when it breaks ſpontaneouſly, or is opened, it diſcharges great quantities of ſlimy matter, not unlike dirty ſize.

It generally proceeds from blows or ſtrains, or hurts in drawing; or from a critical tranſlation of matter in a fever. When the poll ſwells from a blow or bruiſe, it may be eaſily cured by faſtening an ear-band to the collar, to prevent its preſſing on the part, and bathing it two or three times a day wi h warm vinegar, and if there is an oozing through the ſkin it muſt be mixed with an equal quantity of ſpirit of wine. In this ſtate the abſceſs may be prevented by this means. But when there is a heat in the part with inflammation, it will be proper to bleed, and then apply a poultice with white bread and milk, or the following,

Take

Take of the crumb of white bread eight ounces; of white hard ſoap an ounce; of milk a ſufficient quantity: boil them together a little, and then the mixture will be fit for uſe.

This muſt be repeated once or twice a day till the itching is gone, and the ſwelling abated. This method, with laxative phyſic, may prevent an abſceſs; but when it is formed, bleeding and purging are unneceſſary, and it muſt be brought to a head with a poultice made with rye flour and oatmeal, made pretty thick with ſtrong ale or beer, and then brought to a proper conſiſtence with ointment of marſh-mallows. It will be beſt to let it break of itſelf, and then the matter muſt be ſqueezed out gently once or twice, after which it may be laid open, keeping as much as poſſible according to the direction of the fibres of the muſcles, without cutting the tendinous ligament if it can be avoided; I mean that ligament that runs along the neck under the mane. And therefore, if the matter is gathered on both ſides, the beſt way will be to open it on both ſides.

This done, a leaden probe muſt be introduced as gently as poſſible, and by that means the orifice muſt be made ſo wide as to introduce the finger; or it may be better done with a ſhort ſpunge tent, and a bit of dry ſpunge will do well enough for this uſe without any preparation. If the matter is white, and of a good conſiſtence, it may be heated with turpentine, honey, and the tincture of myrrh. When proud fleſh ariſes you may ſtrew a litttle ground red precipitate thereon.

But if the matter is of a bad colour and conſiſtence like melted glew, there will be need of a ſecond inciſion but not too deep, and the wound ſhould be widened with the finger. Then it ſhould be ſearched with a leaden probe to ſee whether there are any drains, and to ſee how far they reach. If they go but a little way, the common dreſſings with a little addition will do,

but if they go deep between the interſtices of the muſcles, they muſt be laid open with a knife, taking care to avoid the tendons.

In theſe diſorders, tinctures are always preferable to greaſy ointments, ſuch as the tincture of myrrh and aloes, friar's balſam, &c. *Gibſon* directs the following mixture:

Take rectified ſpirits of wine and white wine vinegar, of each half a pint, of white vitriol diſſolved in ſpring water half an ounce; of tincture of myrrh four ounces: mix them together and ſhake the bottle every time it is uſed.

Heat a little of this in a ladle, and then ſoak tow in it to waſh the wound with; after which fill it up with tow moiſtened with the ſame; but it muſt lie very looſe, leſt it ſhould hinder the growth of good fleſh. Sometimes bathing it with this liquor alone will do, if you fill it with dry lint, and cover it with tow to keep it from the air. In ſome caſes once or twice a day may be neceſſary till the running decreaſes and the ſore ſeems to grow better. Then the ſore ſhould be bathed with ſpirit of wine alone, and it ſhould be covered with tow dipt in vinegar and whites of eggs beat together, which will ſerve inſtead of a bandage. This ſhould be covered with a piece of woollen cloth, with two loops of liſt round his ears, and it may be tied underneath by the means of tape faſtened thereto.

When the ulcer is very foul it may be cleanſed with phagadenic water, made with two drams of corroſive ſublimate, and a pint of lime water; and then it muſt be filled with looſe doſſils of tow dipt in Egyptian ointment and oil of turpentine made hot.

But the ſhorteſt way of curing this diſeaſe is by ſcalding with the following mixture:

Take corroſive ſublimate, verdigreaſe in fine powder, and Roman vitriol in powder, of each two drams; green copperas half an ounce; of Egyptian ointment two ounces;

ces; oil of turpentine and train oil, of each eight ounces; of rectified ſpirit of wine four ounces; mix theſe together in a bottle for uſe.

Some make it milder by uſing red precipitate inſtead of corroſive ſublimate, and white vitriol inſtead of Roman vitriol; others uſe linſeed oil inſtead of train oil; ſome again mix half an ounce of verdigreaſe, half a pint of train oil, oil of turpentine four ounces, and oil of vitriol two ounces.

The ulcer muſt be firſt cleanſed with a ſpunge ſqueezed out of vinegar; then put ſome of the mixture into a ladle with a ſpout; and when it is made ſcalding hot, it muſt be poured into the abſceſs, and the lips muſt be cloſed together with a ſtitch or two, according to the ſize. This muſt remain ſeveral days and if good matter appears it will ſoon be cured, with bathing it with ſpirit of wine. If the matter is bad and in plenty, it muſt be ſcalded a ſecond time, or oftner if neceſſary. This method is moſt proper when this diſeaſe proceeds from a fever or a ſurfeit.

Of a FISTULA *in the* WITHERS.

THIS diſorder generally begins on the top of the withers, and is ſmall at firſt, but it ſoon increaſes and ſpreads on both ſides, often reaching down to the ſhoulders and forwards towards the neck, which impoſtumates and turns ſinous unleſs taken in time. Sometimes it is confined to one ſide only, though the other may be a little ſwelled. It may proceed from bruiſes of the ſaddle, or the poll evil in the ſame manner as in fevers. When it is cauſed by a bruiſe it is not dangerous, and may be repelled with ſafety. When it breaks on one ſide only, and the ſwelling on the other ſubſides, it may be cured in the ſame manner as any other abſceſs. If in both ſides between the

ſpines,

ſpines, the cure will be difficult. That between the ſinuſſes of the lowermoſt rack-bones is of a very bad kind, and if cured cauſes a deformity. When there are ſeveral ſinuſſes that communicate with each other, the cure is generally impracticable.

When the ſwelling is cauſed by the ſaddle or a blow, bathe it with hot vinegar, if that fails, mix half an ounce of white vi riol with a quart of vinegar: but the vitriol muſt be firſt diſſolved in water. This will reduce ſmall ſwellings in a ſhort time. When the ſwelling is hot, or when little hot watery pimples ariſe, there is an ulcerous diſpoſition, which may be prevented with the following mixture:

Boil two ounces of ſal ammoniac, or a handful of wood aſhes, in a quart of water: then pour off the clear, and mix it with half a pint of ſpirit of wine.

Bathe the eruption with this firſt, and then anoint it with linſeed oil to ſoften the ſkin. Aqua fortis may be applied once in two days, but then it burns off the hair and makes the ſwelling turn to a quaggy ichor, which will caſt off ſloughs and abate the ſwelling, leaving a ſcar with a little baldneſs. Oil of vitriol will do the ſame; or white vitriol mixt with vinegar and ſpirits of wine.

When this tumour is the conſequence of a fever it muſt never be repelled, but ripened with ointment of marſhmallows mixt with a little oil of turpentine; or a poultice made with a pint of rye flour, ſix ounces of hog's lard, four ounces of ointment of marſhmallows, and four ounces of oil of turpentine, mixed and warmed in a pipkin. The ſwelling muſt be always covered with a cloth under his body-cloth till it breaks.

The abſceſs ſhould break of itſelf, or at leaſt be very ripe before it is opened, which may be known by its ſoftneſs. It may be opened with a hot iron, ſmall at the point, but neither round nor ſharp. Empty the abſceſs and put in a leaden probe to diſcover which way it turns, that you may open it ſtill farther. This

opening

opening ſhould be made downward from the orifice a little ſlanting, as far as the hollowneſs reaches, which is beſt done by a half round firing iron made hot. This may prevent a fiſtula. When there is an abſceſs on the other ſide, it may be opened in the ſame manner, and when there is a communication between both, it may be preſerved by a perforation through the withers, taking care to avoid the ligament which runs along the neck to the withers.

Some of the ulcers will fill up with the uſe of turpentine, honey, and the tincture of myrrh mix'd with red precipitate, and bathing the ſore all round with rectified ſpirit of wine. But when the ulcer is foul and the matter of a bad colour, with fungous fleſh, then the following mixture will be proper:

Diſſolve a quarter of an ounce of Roman vitriol in half a pint of water, oil of turpentine and rectified ſpirit of wine, of each four ounces; of white wine vinegar ſix ounces; oil of vitriol and Egyptian ointment of each two ounces.

Mix theſe together, making them ſcalding hot, and ſoak pledgits in it to apply to the ulcer; as often as it is dreſſed it muſt be bathed with the following mixture:

Take ſpirit of wine and vinegar, of each a pint; of oil of ſulphur two ounces. The oil muſt be dropt in by little and little to prevent too great an effervеſcence.

There is no material difference between oil of ſulphur and oil of vitriol, ſo that you may uſe which you pleaſe. The pledgit ſhould be laid in the ulcer as looſe as poſſible, and when it fills up with ſound fleſh, lint alone will do, or pledgits large enough to cover the whole ſore, armed with the common digeſtive and mixt with a ſmall quantity of precipitate. When the ulcer is ſinuous, the ſinuoſities muſt be laid open and dreſt as before; when it is a true fiſtula, its ſources muſt be deſtroyed with a cauſtic or a hot iron.

When

When the bones are foul, inject equal quantities of tincture of myrrh and tincture of euphorbium, bathing the sore all about with the preceding mixture. This disease may likewise be cured with scalding, as in the poll evil.

Of STRAINS *of the* SHOULDERS, KNEES *and* PASTERNS.

A Fresh strain in the shoulder may be easily known by the horse not putting out that leg like the other, that is not so far, and by his endeavouring to favour it. When it proceeds from humours and affects both shoulders, he stumbles as he goes along.

Sudden lamenesses of the shoulders may be cured by dissolving half an ounce of bole armoniac, or French bole, in a pint of good vinegar; and bathing the part with it two or three times a day, from the wither almost to the knee, and half way up the breast, letting the horse rest a few days, till he is well. If the horse is lame without a swelling; then

Take of the best vinegar half a pint; spirit of vitriol and rectified spirit of wine, of each two ounces; of French bole half an ounce: use it as the former.

When the shoulder is much swelled and relaxed, then fomentations will be necessary,

Take of the tops of rosemary, lavender and wormwood, of each an ounce; of camomile flowers half an ounce; bay-berries and juniper berries, of each an ounce and a half; of crude sal armoniac four ounces; of salt of tartar two ounces; boil them in two gallons of chamber-lye.

Take a quart of this fomentation, and mix it with half a pint of spirit of wine, and foment the horse's shoulder with it with pieces of flannel large enough to cover it all over. The liquor must be made hot, and the flannel applied as usual. Besides this, it will be proper

proper to make a rowel in the point of the ſhoulder, and there will be no doubt of a cure

The STRINGHALT may be cured with frictions and fomentations, without any farther trouble.

Strains of the knees and paſterns, may be cured with poultices made with rye flour, the grounds of beer and chamber lye. When the ſwelling and inflammation is abated, bathe the parts twice a day with the following mixture:

Take vinegar a pint, of camphorated ſpirit of wine four ounces; of white vitriol diſſolved in a little water, two drams; this will ſtrengthen the horſe's knees and paſterns.

Of STRAINS *in the* COFFIN-JOINT, BACK-SINEWS, *and* HOCK.

THE *Strain of the Coffin-joint* is not readily known at firſt, becauſe the horſe does not favour that foot, except he plants it on the ground, but in time it will become ſo ſtiff that he will only touch the ground with his toe; nor will the foot play with the hands. Bliſtering and firing will cure this diſorder, unleſs it has been of too long ſtanding.

The *Strain of the Back-Sinew*, is a common accident and generally proceeds from hard riding in bad roads. In this caſe the ſinew will ſwell, ſometimes from the backſide of the knee to the heel; and then the horſe does not care to put his foot even on the ground, but ſets it before the other while he is ſtanding.

There is nothing cures this diſorder ſo ſoon as the vinegar, and French bole lately mentioned. It muſt be made warm and rubb'd into the ſinews often in a day. And if any weakneſs remains, a mild bliſter will compleat the cure, and bring down the ſinew to its natural ſtate.

Strains

Strains in the Hock, are eaſily cured, when taken in time, by bathing them with coolers and repellents, as in other recent ſtrains. But when the ligament is hurt, they muſt be well plied with fomentations, and then there will be no danger of ſucceſs. If the calloſity or hardneſs grows only on the outſide, it may certainly be removed by repeated bliſtering But if the calloſity is on the inſide it will be neceſſary to fire the part very gently, making lines pretty cloſe together, and then apply the following charge:

Take of the plaiſter of gum ammoniac with mercury, to be had at the ſhops, ſix ounces; melt it with a little linſeed oil to make it a little ſofter, but not too ſoft, and apply it like a charge over the hock; and when it is fallen off, renew it once or twice more.

When there is a hard ſcabby ſore or crack in the bending of the hock, it is called the *Sallenders*, and when there is the ſame in the bending of the knee, it is termed the *Mallenders*. Theſe are firſt to be waſhed, after the hair is clipped off, with a lather of ſoap in chamber-lye, and then lay on the mercurial ointment of the ſhops ſpread on tow. This ſhould be repeated night and morning; or

Take Ethiops mineral half an ounce; of white vitriol a dram; of ſoft green ſoap ſix ounces: incorporate them well together in a mortar, and apply as before.

Either of theſe uſed with care, will be ſufficient; though ſome make a ſtrong liniment with two drams of corroſive ſublimate, and two ounces of hogs lard.

Of LAMENESS *in the* STIFLE, WHIRL-BONE, *and* HIP.

WHEN a horſe is lame in the ſtifle, he generally treads upon his toe, and cannot ſet the heel to the ground. Sometimes the ſtifle ſwells pretty much.

much. Cooling applications, ſuch as were uſed for the ſhoulder, will ſucceed very well, unleſs the ſwelling be large and puffy, and then the fomentation muſt be uſed. When there is an abſceſs which breaks and runs, it will terminate the diſeaſe.

Lameneſs of the whirlbone and hip, may be cured, when they are diſcovered in time; otherwiſe the cure is very uncertain. At firſt the horſe diſcovers but little lameneſs, or ſcarce any at all, in his walk, unleſs he comes to trot, and then he drops backwards upon his heel.

The cauſe of the lameneſs may lie either in the muſcles or the whirl-bone of the hip, which at firſt may be removed with coolers and repellers ſo often mentioned. They ſhould be uſed at leaſt four or five times a day. But when this diſorder is confirmed, we muſt uſe bliſtering and firing, which may remove the lameneſs ſo far as to leave only a limp, that will not hinder his going through buſineſs. Rowels in this caſe have done more harm than good.

Of NARROW HEELS, BINDING *of the* HOOF, *and* SAND-CRACKS.

NARROW HEELS are generally natural defects, and are often rendered incurable by bad ſhoeing. The beſt method is to hollow the foot in ſhoeing, and to pare nothing out but what is rotten or foul. When the foot is hard or dry, or inclinable to be rotten, bathe them often in chamber-lye, or boil two pounds of linſeed in chamber-lye to the conſiſtence of a poultice, and then add ſix ounces of ſoft ſoap, and anoint the foot every day with this, and put a little upon the ſoal. Or,

Take

Take ſix ounces of freſh butter, two ounces of bees wax, one ounce of tar, and as much linſeed oil as will bring it to a ſmooth ointment.

Binding of the hoof, is when it is ſo ſmall about the inſtep that it turns the hoof into the ſhape of a bell. The cure of this is by making ſeven or eight lines, with a drawing knife from the coronet almoſt to the toe. The lines muſt penetrate almoſt quite through the hoof, but not quite reach the quick; and keep it charged with pitch till the lines are quite worn out with ſhoeing, which will require ſeveral months; and therefore many turn the horſe out to graſs till the feet grow down, though ſome are able to travel in a few weeks.

Horſes ſometimes have old nails and other ſharp things run into the tender parts within the ſoal. When this is the caſe, after taking them out, the part muſt be bathed with warm oil of turpentine and ſpirit of wine, and pledgits with baſilicon ſhould be laid over it by way of ſtopping. If it turns to an ulcer, and diſcharges foul ſtinking matter, and proud fleſh ariſes thereon, the dreſſing muſt be made with honey, Venice turpentine and Egyptian ointment; firſt ſtrewing precipitate on the ſore.

A *Sand-crack* is a little ſmall cleft on the outſide of the hoof. When it penetrates through the horny part of the hoof, and runs directly downward, it is not eaſily cured. When it paſſes through the ligament which unites the hoof with the coronet, it is apt to breed a quitter or a falſe quarter, which are very dangerous. When the crack penetrates through the hoof without touching a ligament, it may eaſily be cured by raſping the edges ſmooth, and applying thick pledgits of yellow baſilicon, and binding them down with ſoft liſt or a piece of very large waxed packthread bound round it like a hoop. But if there is a hollowneſs under the hoof, and the cleft ſeems to be ready to penetrate through the cartilage or ligament, it had beſt be fired directly with irons moderately hot; but

both

both ſides of the cleft are firſt to be raſped thin, and that gradually on each ſide to ſome diſtance. This done, the horſe ſhould be turned out to graſs till the foot is well.

La Foſſe has lately diſcovered that the coronary bone is often crackt into three pieces, and ſometimes from ſlight accidents. But as this is incurable, it is only a caution for people not to throw away their money in attempting a cure. He does not pretend to give any ſymptom to diſcover it, but only in general ſays, it is a lameneſs that draught horſes are moſt ſubject to.

Of a QUITTOR, RUNNING FRUSH, *and* CANKER.

A *Quittor* is an ulcer formed between the hair and the hoof, commonly on the inſide quarter of a horſe's hoof. It is dangerous when the hoof is hollow near that part, or the blood vitiated. But while it continues on the outſide of the hoof, it may be eaſily managed. The coronet muſt be bathed all round every day, with ſpirit of wine, and the ſore muſt be dreſſed with yellow baſilicon, mixed with red precipitate, in the proportion of an ounce of the former to two drams of the latter.

But when the matter gets under the hoof, there is no way of coming at it but by taking off part of the hoof. This muſt be done very carefully, and judiciouſly, and then the cure will not be difficult. When the ulcerous matter is got ſo near the quarter, as to make it neceſſary to be taken off, the cure can only be palliative; for when it grows again it leaves ſo large a ſeam as to weaken the foot; but he may ſerve pretty well for a draught horſe afterwards.

A running of the fruſh or thruſh, is an impoſtume that gathers in the frog of horſes that have fleſhy heels, and have deep clefts in their frogs. Thoſe that have

clean dry frogs are ſeldom troubled with ſuch accidents. They are ſometimes attended with the greaſe.

When the abſceſs appears, the hard part of the frog muſt be pared away, and whatever appears rotten. Then the bottom of the foot muſt be waſhed two or three times a day with old chamber-lye; which will ſerve for the preſent, for it is very apt to return.

When there is a great flux of humours upon the part, it is apt to turn to a canker, which we muſt endeavour to prevent by applying the following mixture:

Take vinegar and ſpirit of wine, of each two ounces; of tincture of myrrh and aloes an ounce; of Egyptian ointment half an ounce: mix them together, and bathe every part that appears moiſt: and lay tow dipt in the mixture over the ulcer, in the manner of ſtopping.

Then the horſe ſhould be purged with laxative phyſic, and two or three diuretic doſes mentioned in the next ſection.

When a thruſh becomes rotten and putrid, it is apt to degenerate into a *canker*, eſpecially when it is got into the ſinuoſities of the coffin joint. Sometimes it may proceed from bruiſes, corns and nails.

The canker ſometimes makes ſo ſwift a progreſs, that it will turn the muſcles of the foot to a quag in one night's time, and rot the ſoal at the ſame time. The quick growth of fungous fleſh that appears in theſe ſores, requires the ſtrongeſt applications. Aqua fortis or oil of vitriol ſhould be applied every day, and then we may get ground of the diſeaſe, even though it reaches the coffin-bone; for though the muſcles of the foot are quite waſted with the canker and the cure, yet they will grow again, and the horſe will at length have a better ſoal than before. When the canker does not riſe while the dreſſings are uſed, once in two days will be ſufficient, and ſometimes a little red precipitate and burnt allum, will be neceſſary to ſtrew on the growing fleſh, till the ſoal begins to appear. The hoof ſhould not only be cut off in all places where it preſſes the tender

tender parts, but ſhould be kept ſoft with linſeed oil, and every time the foot is dreſſed, it ſhould be bathed all round with chamber-lye. He ſhould have two or three doſes of laxative phyſic, at proper intervals, when he is come to his ſtomach. When the foot is firm and ſtrong, a little working will do the horſe good.

Of the GREASE, CROWN SCAB, *and* RAT-TAIL.

THE *Greaſe* is a diſorder generally known, and affects horſes of a groſs conſtitution, through the careleſſneſs of thoſe that look after them. For keeping the limbs clean and dry, is a great preſervative againſt this diſorder. In bad caſes the horſe's blood is very poor, which inclines him to dropſical diſorders. This cauſes a ſwelling of the limbs firſt, and then the eruptions appear afterwards, which diſcharge a ſtinking matter ſomewhat like melted glue. Sometimes the greaſe breaks out before, ſometimes behind, and when the conſtitution is very bad, it falls into the ſore limbs at the ſame time.

When the heels are firſt obſerved to ſwell, while the horſe ſtands in the ſtable, and goes down upon exerciſe, order them to be well cleaned when he comes in, and waſhed with ſoap-ſuds, chamber-lye or vinegar and water, which with ſufficient rubbing will often prevent or remove the complaint.

The intention is to brace up the fibres, ſtrengthen the veſſels, and ſo to prevent the afflux, or rather ſtagnation of the blood and humours; which may be done with bathing them with old verjuice, or by dipping rags in the ſame and rolling them on with a proper bandage; and by this means in a few days the parts may recover their tone.

There is another way of keeping down the ſwelling, though not brought into practice, and that is a laced ſtocking, which any ſenſible taylor or ſadler is capable of making on the ſwelled part. It ſhould be made of ſtrong canvas that will not eaſily tear when put to the trial. However the part may be waſhed pretty often with the following repellent lotion:

Take half an ounce of camphire, and diſſolve it in four ounces of rectified ſpirits of wine; an ounce of white vitriol, with as much water as will juſt diſſolve it. Mix theſe together, and then add ſix ounces of white wine vinegar. Shake the bottle every time it is uſed.

When the cracks and ſcratches begin to ooze and run, the hair muſt be clipped away, to make the grieved part more eaſy to come at; as alſo when there are hard ſcabs. When the diſorder has proceeded thus far, it will be proper to uſe poultices with turnips or with rye flour, turpentine, and hogs lard mixt with ſpirit of wine. And when his limbs begin to be more limber, he muſt be purged ſeveral times with due intervals between, remembering always, never to give ſtrong phyſic. After a few days the common digeſtive ointment ſo often mentioned may be laid over the part, and the poultice upon that; which may be made only with boiled turnips, lard, and a handful of powdered linſeed. When a running is procured by this means and the veſſe'ls are unloaded, the ſore may be dried up by the following waſh:

Take of lime water a quart or three pints; white vitriol and burnt allum of each two ounces; of the Egyptian ointment an ounce. Mix theſe together, and waſh the ſores three times a day with a ſpunge dipt in the mixture. If you would have it more drying and aſtringent, diſſolve a dram of ſugar of lead in every ounce of the mixture.

Sometimes a drying ointment may not be improper.

Take

Take of red lead two ounces, of verdigreaſe an ounce, reduce them to a fine powder, and mix them with four ounces of honey.

What has been ſaid hitherto, will ſerve to cure this diſeaſe when it is local, but if the legs are very much ſwelled, and are *penfeathered*, that is when the hair ſtands ſtaring up, with a running of fœtid matter from deep ſores, the cure will be difficult.

When the diſeaſe is in this ſtate, the blood is always poor, and therefore muſt not be begun with bleeding as ſome direct; but the impure ſerum muſt be in ſome meaſure carried off by diuretics.

Take a quart of clean forge-water and mix it with four ounces of yellow roſin, and an ounce of ſalt petre ground well together; then add a dram of unrectified oil of amber. This is a doſe to be given in a morning faſting.

He muſt be kept faſting two hours before and after this drench, and then he muſt have cold water with moderate riding. But as this is very diſagreeable to ſome horſes, the following balls may be ſubſtituted in their room.

Take of ſaltpetre two ounces; of filings of iron, half an ounce; of camphire a dram. Make them into a ball with a ſufficient quantity of honey, waſhing it down with a horn or two of ſmith's forge-water.

When there is any remains of the humour, the leg may be bathed with ſpirit of wine and vinegar in equal parts. If this is not ſharp enough, a little Ægyptian ointment may be mixed with it. But if the heels continue ſcabby and dry, uſe the following ointment:

Take yellow baſilicon and honey, of each two ounces; of verdigreaſe in fine powder, three drams: mix them. Let this be applied once a day, till the cure is effected.

When there is any weeping remains, the above ointment with red lead may be laid on the part, like a poultice ſpread upon tow, and renewed once in three days. When the diuretic balls are not powerful

enough, they may be aſſiſted with equal parts of cinnabar and gum guaiacum, giving him an ounce for a doſe every night and the diuretic ball; ſometimes omitting this laſt as you ſhall ſee occaſion.

Rat Tails generally creep from the paſtern to the middle of the ſhank, along the *tendo achilles*, or maſter ſinew. They are ſo called becauſe they reſemble the tail of the rat. Sometimes they paſs along one ſide of it, and are generally dry, but now and then moiſt. The following ointment will not only cure theſe, but *ſcratches*, *kibes*, *figs*, and the like diſorders.

Take ſoft ſoap and black baſilicon, of each two ounces; of linſeed oil an ounce; of white vitriol, in fine powder, half an ounce: mix theſe well together, and dreſs the part with it every day, wiping it clean.

The *Crown Scab*, is a humour that breaks out round the coronet, producing a ſcurfineſs and itching. It may be cured with a mixture of ointment of marſh-mallows, and yellow baſilicon, ſpread upon tow and laid round the coronet, giving the horſe at the ſame time a few doſes of the above diuretic drink, and a laxative purge or two, of which you will find ſeveral preſcriptions interſperſed in this treatiſe.

Before I make an end of this treatiſe, it will not be amiſs to take notice that we have recommended *puff balls* and *agaric of the oak* more than once for the ſtanching of blood, not as a new diſcovery, but as better than any other way, tho' we did not then know that it had been made uſe of by others for that purpoſe in horſes. However, we find that *La Foſſe* had tried the powder of puff-balls in ſome caſes, ſome of which he has ſince publiſhed. In *France* they call them *Veſſe-de-Loup*, which is the ſame that botaniſts call *Lycoperdon*. His method was to apply ſome of the duſt to the bleeding artery, and to keep it on with the palm of his hand for about twelve or fifteen minutes, and then the blood ſtopped. He cut off the leg of a horſe and applied the powder with a bladder to

the

the ſtump to keep the powder on without any other dreſſing, and the blood ſtopt. By other experiments, he found that when the wound came to ſuppuration, it did not renew the bleeding. Therefore we conclude that the powder of the puff-ball and the agarick of the oak are ſafe remedies for the ſtoppage of large hemorrhages, which proceed from wounds, amputations, or otherwiſe; and that they are attended with no bad conſequences or dangerous accidents.

AN

APPENDIX

OF

APPROVED RECEIPTS.

The Rye-bread Drink.

TAKE a large ſlice of brown or rye bread, two ounces of flour of brimſtone, a quarter of a pint of honey, with a ſufficient quantity of ale to make a drink. This may be repeated and given to horſes in the ſtrangles, or a day or two before phyſick, being both opening and cooling.

A Diuretick Ball for the GREASE.

Take of Venice turpentine, ſal prunella, flour of brimſtone, of each one ounce: make them into a ball. This is a very moderate ball, and ſhould be waſhed down with a quart of ale, that has one pound of onions ſteeped in it all night. You may give this once in four days, and by repeating it, it will clean a horſe's legs wonderfully, and in ſome caſes will do without phyſick. But to make them thoroughly clean, I would adviſe purging after it. To a coach horſe you may give it for two or three days ſucceſſively.

Ball

Ball againſt piſſing blood.

Take of cortex peru one ounce; roch allum and dragon's blood, each two drams; conſerve of roſes enough to form into a ball: to be given once in eight hours, with a ſpirit of ſtrong decoction of oak bark.

Common piſſing ball.

Take Venice ſoap and yellow roſin, each one pound; ſalt of tartar half a pound; camphire powdered, one ounce; oil of juniper half an ounce: beat them up together with honey and liquorice powder, and give two ounces every morning faſting.

Common piſſing drink.

Yellow roſin four ounces; ſalt of tartar two ounces: grind them together, and diſſolve in a quart of forge water.

Ball againſt a ſurfeit.

Take nitre two ounces; camphire one dram: mix into a ball with honey.

For hidebound horſes.

Give an ounce of antimony and flour of brimſtone every night in a maſh, and continue for a fortnight.

A worm powder.

Take of ſavin and tin powdered, each an ounce; give it night and morning in a maſh, or the horſe's corn.

A drink for the gripes or fret.

Take a pint of Holland's gin, rum, brandy, or Daffy's-Elixir; with the ſame quantity of ſweet oil; and

and three or four ounces of common ſalt: mix them together and give it warm, and repeat it if neceſſary.

The following ſhould be always kept ready at hand, and would be a means of ſaving many horſes which are frequently killed by violent gripes and ſpaſms in the bowels; it muſt be given inſtantly in the moſt violent pains, which it ſcarce ever fails to relieve.

Take unprepared opium two ounces; of cinnamon and cloves, each one dram. Infuſe the whole for ten days in a pint of white wine without heat; then ſtrain it off and cork it cloſe, and keep it for uſe.

A glyſter for the gripes.

Take a ſheep's head, boil it in ſix quarts of water to two; ſtrain off the liquor, and add thereto half a pound of mutton ſuet; and half a pint of ſweet oil; with two drams of opium.

A bliſtering ointment.

Nerve and marſhmallow ointment, each two ounces; quickſilver one ounce; thoroughly broke with an ounce of Venice turpentine; Spaniſh flies powdered, a dram and an half; ſublimate one dram; oil of organum two drams.

Cut off the hair as cloſe as poſſible; the horſe muſt be kept tied up without any litter till night, to prevent his nibbing or gnawing of the bliſter, which muſt be anointed with lard the next day.

An ointment for mallenders and ſallenders.

Take hogs lard two ounces; ſublimate mercury two drachms. Waſh out the cracks with warm water and

and ſoap; and let them be rubbed with a little of this ointment night and morning.

For a ſtrain.

Take of the beſt vinegar half a pint; ſpirit of vitriol and camphorated ſpirit of wine, of each two ounces.

For the poll evil.

Take half an ounce of verdigreaſe; half a pint of train oil; fourteen ounces of oil of turpentine; and two of oil of vitriol: apply it ſcalding hot, firſt cleanſing the abſceſs with vinegar.

A comfortable drink for a cold.

Take flour of brimſtone, anniſeeds, diapente, of each two ounces; of ſaffron in powder, a dram and a half; Venice treacle two ounces; honey three ounces: make them into a drink with a quart of ale, and give it warm in the morning faſting, adding two ounces of ſweet oil juſt before; keep your horſe warm all that day.

For the mallenders.

Take of red precipitate an ounce; of vitriol two ounces; of Egyptiacum three ounces: mix them together, and make an ointment; and after clipping off the hair, roll on the ſize of a nutmeg.

A good ointment to cleanſe wounds and heal them, and to keep down proud fleſh. It is alſo good for cracked heels when they grow dry, and the ſcabs make the horſe uneaſy by their heat before they fall off.

Take the apoſtles green ointment, and apply it to the heels, till the cracks are healed and the ſcabs quite gone.

Balls

Balls to carry off the remainder of the humours, if the legs ſwell after phyſic.

Take common antimony, flour of brimſtone, diapente, of each a pound: moiſten this with a ſufficient quantity of honey, and cold drawn linſeed oil, juſt enough to make the powders roll. Give a ball of this every morning, for five or ſix days. If this don't do, rowel him.

A liniment for a ſprain in the back ſinews.

Take oil of turpentine and the beſt ſpirit of wine, of each an ounce and a half; of oil of ſpike an ounce; of caput mortuum of vitriol an ounce; of dragon's blood two drams; of oil of origanum a dram and a half: mix them well together, and rub ſome into the part.

An ointment for a ſhoulder ſprain.

Take nerve oil and hog's lard of each a quarter of a pound; two ſpoonfuls of tar, three quarters of an ounce of ſublimate mercury, finely powdered, ten cantharides powdered. Put the nerve oil and hogs lard into an earthen pan over the fire till they are juſt boiling; then add the mercury and flies, and let them juſt boil; and then take the mixture off the fire, and ſtir it till it is quite cold.

How to uſe it.

Take the bigneſs of a walnut and rub it well into the part with your hand; let the horſe ſtand three days without ſtirring. The more it ſwells the better, if the horſe walks well after three days reſt; then rub his

his ſhoulder with train oil, ſtroking down the hair with your hand. If the horſe is not cured with the firſt dreſſing, at three days end uſe it again.

A bliſtering charge.

Take black pitch and roſin, of each two ounces; Venice turpentine, maſtic, euphorbium, and cantharides in powder, of each an ounce. Incorporate theſe properly, but mix the laſt when almoſt cold; then add two drams of aqua fortis very gently, and you may add one ounce of dragon's blood.

A common but uſeful ball for horſes that have flying humours.

Take common antimony, flour of brimſtone, anniſeeds, and liquorice, of each four ounces, all in fine powder, and made into balls with four ounces of honey; of oil of anniſeeds four drams; of linſeed oil cold-drawn a ſufficient quantity, to make them into balls.

The apoſtles ointment.

Take turpentine, roſin, yellow wax, gum ammoniac, of each one ounce; the roots of long birthwort, olibanum, aud bedellium, of each ſix drams; myrrh and gelbanum, of each half an ounce; opoponax and verdigreaſe, of each two drams; lithargy, nine drams; of oil of olive, two pounds; of vinegar as much as is ſufficient to diſſolve the gums, and make the whole into an ointment. This is an excellent oil to cleanſe foul ſores, and is much uſed for wounds, cuts, and cracked heels. It is likewiſe the beſt ointment to dip rowels in.

An

An ointment for the ſpavin.

Take of Venice turpentine, two ounces; of hogs lard one ounce; of ſpirit of turpentine, half an ounce, cantharides and euphorbium, of each half an ounce; both in fine powder: ſet them over the fire and ſtir them together till they are cold.

A poultice for greaſy heels.

Take honey, hogs lard, and turpentine, of each a pound; of rice meal a ſufficient quantity: ſimmer them all together over the fire, and then put a pound of beaten allum, fine ſifted, to the reſt when cold. Spread it on a cloth, and apply it to the heels, and let it lie on twenty-four hours.

A drink for the greaſe.

Take liquorice powder, elecampane-root, flour of brimſtone, anniſeeds powdered, of each an ounce; of rue an handful, and one head of garlick: boil theſe in a quart of ale till it comes to a pint; then add a pound of common treacle and three ounces of oil of turpentine. This is to be given once in four or five days. Bleed the horſe on the day you lay on the poultice, and give the drink the next day. Keep him very warm, and walk him gently in a dry place.

A drink for the yellows and ſtaggers.

Firſt bleed at the mouth or tail, and then give three drams of ſaffron; turmerick, anniſeeds, of each half an ounce; of London treacle three ounces; diſſolved over a gentle fire in a pint of ſack, or white wine: mix them together. *Balls*

Balls to carry off greaſe.

Take anniſeeds, fenugreek ſeeds, liquorice root, wild ſaffron, carthamus, flowers of ſulphur, of each one ounce; jalap, ſena, myrrh, gentian, of each half an ounce; of cream of tartar, two ounces: beat all to powder, and add juice of liquorice diſſolved in white wine, an ounce: make a maſs with freſh butter for twelve balls. Give three at a time every other day.

For the farcin.

Take lapis calaminaris, tutty, of each one ounce; ſal tartar, half an ounce; rue one handful, ſhred very fine: boil all the drugs, being finely powdered, in a pint and a half of urine to a pint, keeping it ſtirred. Strain off the liquor, and let the horſe faſt ten hours before, and ten after he has taken it.

A poultice for a ſtrain in the fetlock-joint.

Take one pint of vinegar; wall-flower, agrimony, groundſel, parſley, mallows, of each one handful; and a ſmall quantity of hog's greaſe. Chop the herbs and boil them well together. Apply it as warm as the horſe can well bear it poulticewiſe.

A cold charge.

Take the white of eggs, bole armoniac, ſanguis draconis, white wine vinegar, verjuice, of each a ſufficient quantity, oil of roſes and myrrh, of each two ounces: mix them and thicken it with flour.

For a prick with a thorn.

Take violet leaves, agrimony, of each half a handful; boars greaſe or freſh greaſe a ſufficient quantity; and make a poultice with barm.

A ſalve to make the hoof grow.

Take Burgundy pitch, common turpentine, bees-wax, oil of earth-worms, of each four ounces; melt them together, and anoint the part betwixt the hair and the hoof once in twenty-four hours. If the horſe be pain'd in his feet, ſtop them with kitchen-ſtuff and brine, boiled together and thicken'd with yeaſt.

A Poultice for the STRANGLES.

Take mallows and chickweed, of each half an handful; white lilly roots and fenugreek in powder, of each a ſufficient quantity: boil them with hogs greaſe and lees of ſtrong beer, applying it very hot.

An ointment for SWELLED LEGS, SCABBY HEELS, *and* CRACKS.

Take verdigreaſe four ounces, boiled in four pints of ale, till it becomes thick like an ointment, which will be when one third is waſted. Anoint the part twice a day and keep the horſe out of the water.

An ointment for ſore CRACKS *in the* HEELS.

Take of litharge of gold, a ſufficient quantity; of unguentum album camphoratum, as much as you pleaſe, and add a little linſeed oil.

A

A tent for a quitter-bone

Open the hoof to the vein againſt the place that is quittered; then run an iron red hot into the hole of the quitter about an inch or half an inch; then put in a piece of tow with ſpittle, and dipt in ſublimate; then let it reſt three days and take it out, turn it inſide out and put it in again; let it reſt three days longer, throwing cold water on the foot once a day, for the three laſt days. Then take the tent out and pluck the quitter out: after it has done bleeding, dreſs it with the following ointment once in twenty-four hours for five days.

Take green copperas, unſlacked lime, of each equal parts, with a fourth part of ſalt. Make them into an ointment with crown-ſoap and freſh greaſe. When this has been applied, heal the ſore with an healing ointment, and waſh it with copperas water.

A drink and plaiſter for the farcy.

Take of rue, one handful; ſavin, bear's-foot, of each half a handful; two or three ſhives of the inward bark of a walnut-tree, and boil them in four pints of chamber lye to two pints; add to the ſtrained liquor, bole armoniac one ounce and a half; oil of turpentine half an ounce: give it in the morning, letting the horſe have no water till night, and then let it be warm. The plaiſter is made of pigeon's dung finely powdered and dryed, two handfuls, tar one pound, white mercury two ounces, apply it to the part and heat it with a hot iron.

An excellent oil for ſtrains of the ſinews, and ſhoulder-ſlips.

Take linſeed oil, four ounces; oil of ſpike and turpentine, of each two ounces; of nerve oil, an ounce

and a half; oil of Exeter, and ſwallows, of each an ounce; oil of peter, ſix drams; oil of vitriol, two drams and a half. Mix them together for uſe.

A purge for a young horſe.

Take of Barbadoes aloes, one ounce; cream of tartar, half an ounce; of jalap, half a dram: mixt with ſolutive ſyrup of roſes. Make them into a ball, and give it in a morning faſting in warm water.

An ointment for a very ſore back.

Take mercury ſublimate in fine powder, two ounces; of ſoft ſoap, two ounces; oil of bays, one ounce: mix theſe very well together, and keep the mixture cloſe in a pot. When you make uſe of it, take the bigneſs of a nutmeg of the ointment, and rub it very well in with your fingers, for a quarter of an hour, and forty-eight hours after rub on the ſame quantity.

N. B. Put a piece of bladder on your fingers, and uſe it with great caution, for it is a moſt dangerous poiſon.

An ointment to take out a thorn.

Take of the beſt turpentine, one ounce; beat it well with the yolk of a new-laid egg; then add a ſpoonful of the beſt virgin honey, and a ſpoonful of the fineſt wheat flour: mix all theſe well together, and ſpread the mixture on leather, to the thickneſs of a poultice, and lay it on the ſore; repeating it once a day.

For a ſurfeit or a cold.

Take two pints of ale, boil and ſcum it; and then add two or three heads of garlic well bruiſed: boil them

them till a third part of the ale is conſumed, and then put in bay berries beaten or bruiſed ſmall with an ounce of diapente; of elecampane root, half an ounce; London treacle, one ounce; of honey four ſpoonfuls; of ſallad oil, ſix ſpoonfuls: boil them together and ſtrain off the liquor for a doſe. Ride the horſe after he has taken it for ſome time; then cloath him up well and warm. At noon give a maſh, or the white water; repeat this drench every third day, and give white water every day; if the horſe be feveriſh or full of blood, bleed him between the drenches. You may make a gentle purge of this drench by adding ſix drams of aloes in powder.

An ointment for a ſhoulder-ſlip.

Take nerve ointment, two ounces, and mix with it ſpirit of ſal ammoniac, one ounce; then add camphire, two drams, diſſolved in two ounces of ſpirit of turpentine: to theſe add an ounce of oil of ſwallows, mixt with two ounces of oil of ſpike, and two drams of oil of origanum. With this mixture anoint the ſhoulder.

For an inflammation of the eye.

After ſpunging the eye with warm blue milk and water for half an hour, about ſix o'clock apply the following water, obſerving to ſhake the bottle:

Take camphire, half a dram, diſſolved in brandy, half an ounce; of ſoft mountain wine, an ounce; of roſe water, three ounces: mix them. This ſhould be applied with a compreſs of linen cloth, three or four times double, in the evening, and let it lie all night.

A cordial drink for ſudden falling down of humours by an overheat.

Firſt bleed plentifully then take of ſaffron two drams; mithridate and anniſeeds of each an ounce; of liquorice

powder half an ounce; of honey three ounces; mix them in white wine for a drench.

An eaſy gentle purge.

Take of Barbadoes aloes an ounce, cream of tartar half an ounce, jalap two drams, oil of anniſeed fifteen to twenty drops: make them into a ball with freſh butter, and give it about eleven o'clock in the morning. When he comes in from water give him a maſh in the evening, and it will work well the next day.

Work it off with warm water.

For ſwelled legs and the blood ſpavin.

Take Roman vitriol and allum, of each four ounces; of bay ſalt one pound, of euphorbium, two ounces: powder them, and boil in urine, brandy, and white wine vinegar, of each two pints, till one third part be waſted. Warm the liquor, and with a ſpunge bathe the horſe's legs twice a day for two or three days: then let him reſt as long, and bathe them again. This is good for a blood-ſpavin at firſt coming.

For a canker.

Take of plantane water two pints, and ſpirit of vitriol, two ounces mixt together. Bathe the canker with this.

The copperas-water to dry up a ſore,

White copperas three ounces, and boil it in two pints of water till it is reduced to one

Green

Green ointment for wounds.

Take roſin and wax, of each the quantity of a walnut, melt them together, and add hog's greaſe and honey, of each a ſpoonful: melt and ſtir them well together, and then add of common turpentine two ſpoonfuls. When it is diſſolved take the mixture from the fire, and put to it verdigreaſe in powder, one ounce; ſtir them and ſet them on the fire till the mixture begins to ſimmer but not boil. Take it off and ſtrain it through a cloth.

N. B. This ointment will alſo cure the poll-evil and fiſtula, but waſh the wound with the copperas-water firſt.

An ointment to ripen an abſceſs.

Take boar's greaſe, hog's greaſe, baſilicon, of each three ounces, oil of bays two ounces, dialthea an ounce. Incorporate them well together over the fire. Rub the ſwelling every day with this ointment, made warm when you uſe it.

A charge to ſtrengthen ſinews, and for ſwelled legs.

Take oxycroceum, paracelſus, Burgundy pitch, of each equal parts: ſtir them together over a gentle fire till they are well melted and mixt, then take the mixture off and add eight or nine Spaniſh flies or cantharides powdered: apply it to the part, clapping flocks upon it, and let it fall off of itſelf.

For a foundered horſe.

Take of ſheeps ſuet or hog's greaſe one pound, two or three handfuls of wheat bran, and make them into

a poultice with one pint of white wine vinegar. Apply it very hot all over the foot, and renew it once in two days.

For an over-reach in the heel.

Firſt cut it out, leaving no hollowneſs about it; and waſh it clean with vinegar and ſalt; then boil butter and ſalt together, and clap a cloth dipt in it ſcalding hot to the place two or three times together. After this, waſh it with copperas water. If it does not ſkin, dreſs it once in twenty-four hours with flocks dipt in turpentine, and the white of an egg beaten together.

For a watery humour in the eye.

Take of May due or rain water, four ounces; a ſmall piece of white copperas held between a pair of hot tongs, and dropt into the water; then beat the water with the white of an egg till it comes to a froth, with which waſh the eye.

To take away wind-galls.

Take of linſeed oil half an ounce; brandy or ſpirits of wine, half an ounce; oil of turpentine fifteen drops: mix them together, bathe the part with this mixture, and heat it in with a hot iron twice a day two or three days together.

For ſhrunk ſinews.

Take roſemary, coſtmary, ſweet marjoram, camomile flowers, and ſage, baum, melliot, of each one

one handful, boiled in two pints of oil and one pound of freſh greaſe. When the mixture is almoſt boiled, put in a quart of black ſnails and apply it like a poultice to the part.

A mixture for the mange.

Give hempſeed and flour of brimſtone in the horſe's corn till he hath taken half a pound of the brimſtone, and two or three quarts of hempſeed; then waſh him with tar one pound, roch allum four ounces; bay ſalt one pound, tobacco duſt, black ſoap, oil of turpentine, of each half a pound; brine and chamber-lye of each four pints mixt together.

For a dry cough.

Take elecampane, anniſeed, ſulphur, juice of liquorice, white tartar, of each three quarters of an ounce, mixt with Barbadoes tar to the conſiſtence of an electuary. Give the horſe the quantity of a ſmall walnut morning and evening before water.

A balſam for the ſcratches.

Take of the plaiſter called floſunguentorum, ſlice it into a ſkillet and put in double the quantity of lard: melt them over a gentle fire and ſtir them with a ſtick till the mixture is cold. Spread this on large pledgits of tow or linen, and bind it on the heels. This is to be renewed every morning, and if the heels run much, every night. The horſe muſt have a gentle purge firſt, and then cinnabar balls.

Hoof ſalve.

Take common turpentine, dog's greaſe, honey, and juice of elder leaves, of each four pounds, boiled to a thick ſalve.

A purge.

Take of Barbadoes aloes, one ounce; ſalt of tartar and jalap, two drams; thirty drops of chymical oil of anniſeed, and one nutmeg, made up into a ball with ſyrup of buckthorn.

For the yellows and ſtaggers.

Firſt bleed at the mouth, and in ſix hours after bleed in the gaſcoin vein plentifully: then give two drams of ſaffron, turmerick, anniſeeds in powder, half an ounce; London treacle, three ounces: boil them over a gentle fire in a pint of ſack, ale, or white wine.

Another for the yellows.

Take of feverfew, celandine, the inſide of barberry bark, one handful of each; put them into two quarts of ale, and boil it till it comes to one quart, then ſtrain it from the herbs and put into the liquor a quarter of an ounce of ſaffron, two ounces of London treacle, and two ounces of turmerick. Make it boil a little, and give it the horſe lukewarm. Repeat it in two days if need be.

For the farcin.

Take lapis caliminaris, tutty, of each one ounce; ſalt of tartar, half an ounce; rue, one handful, ſhred very fine: boil all together in a pint and a half of urine to one pint. Let the horſe faſt ſix hours before and four after taking it. Keep it ſtirred while boiling, and give it lukewarm.

A purge,

A purge.

Take myrrh, cream of tartar, of each three drams; one dram of ſaffron, one ounce of Barbadoes aloes, three drams of oil of anniſeeds, and treacle ſufficient to make it into a ball. Roll it in liquorice powder.

Balls to be given after hunting, to carry off humours.

Take Barbadoes aloes, polo-ſanctus, coloquintida, jalap, gentian, of each two ounces, diapente, liquorice, anniſeed, ſugar-candy, of each four ounces, myrrh, cream of tartar, of each one ounce; ſyrup of horehound and roſes, of each one ounce; London treacle, three ounces; make it into a paſte with honey or treacle. The quantity of a large walnut to be given after hunting: keep him warm, and give him white water at night.

Another receipt for the mange.

Take hempſeed and ſulphur, of each half a pound: mix them together, and give the horſe one ounce of it every morning in his corn, until all is taken, then waſh him with tar, one pound, roch allum, four ounces, bay ſalt, one pound, tobacco duſt, black ſoap, oil of turpentine, of each half a pound, brine and chamberlye, of each four pints. Boil all together for half an hour. Waſh the horſe well with it twice a week, in the place where he rubs himſelf. Warm it when you uſe it.

Uſeful balls for coughs and aſthmatick diſorders.

Take of flour of brimſtone, half a pound, of elecampane-root, four ounces, fœnugreek ſeeds, cummin ſeeds,

ſeeds, anniſeeds, juniper berries and garlick, of each two ounces, of linſeed oil cold drawn, ſix ounces, honey and tar, of each four ounces, of balſam of ſulphur made with oil of turpentine, an ounce, of ſyrup of coltsfoot, four ounces. Make theſe into balls of the ſize of a pullet's egg, one of which is to be given in a morning faſting for ſome time, intermitting now and then a day or two.

An ointment for greaſy heels.

Take white vitriol, roch allum, and white lead, of each half a pound, of green copperas, three ounces, of verdigreaſe, an ounce: reduce theſe to a fine powder, and then add, of oil of vitriol, an ounce, of honey, half a pound, and with a ſufficient quantity of train oil make a ſoft ointment.

Diuretic balls proper in the greaſe and ſeveral other diſtempers, where purging by urine is required.

Take of Alicant, Caſtile, or common hard ſoap, a pound; of ſtone brimſtone in fine powder, half a pound; of cinnabar of antimony, two ounces; ſal prunella and nitre, of each four ounces; of balſam of ſulphur, an ounce. Make theſe into balls of the ſize of a pullet's egg, and give one to the horſe in a morning on an empty ſtomach, and let him faſt two hours after it.

A cordial ball for colds and coughs.

Take of raiſins ſtoned, half a pound, juniper berries, turmerick, anniſeeds and fœnugreek ſeed, of each two ounces; myrrh, gentian, and aniſated balſam, or ſulphur, of each an ounce; of ſaffron, two drams; honey and ſyrup of coltsfoot, of each ſix ounces;

ounces; of liquorice powder, half a pound. Make them into a maſs for balls with a ſufficient quantity of wheat flour, and keep it in a pot covered for uſe.

A liniment to make the hair grow again.

Take equal quantities of honey and pigeon's dung and mix them well together. Rub this mixture well on the part every other day.

A powder for fevers.

Take of hartſhorn ſhavings, half a pound, and boil them in ſpring water for upwards of an hour, then take them out and lay them in a diſh before a fire, till they are dry enough to powder. After they are powdered, mix them with an equal weight of antimony in powder: Put the mixture in an unglazed earthen pan over a ſlow fire, and keep it ſtirring with an iron ſpatula to prevent its caking together, and when it has done ſmoaking take it off, and you will have an aſh-coloured powder. If you would have it more white put it into a red hot crucible, and calcine it for ſome time.

This proceſs is originally in Tournefort's *Materia Medica*, page 182, and has been given by ſome pretenders to phyſic, to cure fevers in men. But its operation is too rough for that purpoſe, and generally does more harm than good. However, it is ſafe enough for horſes, and may be given to two drams, made up into a ball with honey and liquorice powder. It is good in all kinds of fevers, but more particularly in the inflammatory and malignant. When it is given in the morning it may be repeated again at night, as alſo the next day, once or twice more till the fever is gone. The making of this powder is tedious and troubleſome, and therefore many, no doubt, would be glad to hear of a powder ready made, which would have

have the ſame effects, eſpecially for horſes of great value. Such is the fever-powder of Dr. *James*, whoſe efficacy is infinitely ſuperior to this in queſtion, and whoſe virtues are now well known throughout the three kingdoms, for curing fevers among mankind.

A charge for ſwelled legs with oozing of water through the ſkin after a fever.

Take of verjuice a pint; of currier's ſhavings, a handful: boil them together till they become thick, and then add a handful or two of fuller's earth. Then take the whites of four eggs, and beat them together with two ounces of ſpirit of wine, with a double quantity of camphire. Mix them together for a charge.

This muſt be laid to the part freſh every day, and then you muſt walk the horſe about three or four hours, every time the charge is renewed.

The following Account of the Method of curing a Strain of the BACK-SINEWS, and the ANATOMY of a HORSE'S LEG, was communicated by Mr. DALE INGRAM, Surgeon, but came too late to be inſerted in its proper Place,

For a ſtrain called a clap of the back-ſinews.

FIRST bleed immediately in the fetlock vein.

2. Bathe the affected leg with the warm blood mixt with ſalt for half an hour. 3. Foment the leg twice a day with flannels, ſqueezed out of the following whey, made hot:

Take a quart of milk, and when it boils add half a pint of the oldeſt and the ſtrongeſt verjuice, in which an

ounce of roch-allum hath been diſſolved: Let this mixture boil, and you will have a ſtrong curd immediately. Strain off the whey and preſerve the curd.

This curd muſt be applied warm once a day as a poultice after the leg hath been fomented with the whey as directed. It muſt be bound on with a ſmooth roller. In about ſix or eight days the inflammation will be aſſuaged, and then the following ſtyptic charge muſt be laid on.

Take of the colcothar of vitriol, reduced into an impalpable powder, half a pound, and mix it by little and little with the whites of two eggs beaten to a glare, adding as much ſtrong verjuice as will bring it to the conſiſtence of a cold charge. Then ſpread it on a linen cloth, and roll it on with a bandage four yards long and three inches broad, taking care that every turn be very ſmooth. This charge freſh-made muſt be renewed every twenty-four hours.

Bleeding is deſigned to abate the inflammation, which always attends this accident when violent; to which likewiſe the whey will greatly contribute. The blood and ſalt will ſtimulate and cheriſh the ſinews, and conſequently prevent any farther flux of humours. The curd is a ſtyptic, and will help to reſtore the elaſticity or ſpringineſs of the ſinews, and the cold charge will greatly ſtrengthen the limb. Whereas, all oily greaſy applications relax and weaken it, and therefore ought to be ſhunned. This method is likewiſe much better than a cure by bliſtering and firing, for this laſt method eſpecially, is attended with danger, and may do much more harm than good. Beſides, experience has ſhewn the ſafety and benefit of this practice*.

Of the bones of the fore leg.

THE bones of the fore-leg and foot are ſeventeen in number, *viz.* The Shoulder-blade, the Shoul-

* By this method Mr. Dawkins's horſe was cured, after he broke down on the courſe at Reading, and many others have ſince been recovered in the ſame manner.

der-bone,

der-bone, the Leg-bone or Cubit, the Shank or Cannon-bone, the ſeven Interoſſei of the Shank, the two Stay or Splent-bones, the Nut-bone, which may be reckoned two, though here continued as one, the great Paſtern, the little Paſtern, and the Coffin-bone.

The upper part of the leg-bone is joined to the ſhoulder-bone, and receives the round heads into its cavities. The lower part is received by four of the ſuperior bones which lie between the leg and ſhank-bone, and form the knee-joint. The upper and hinder part of this bone, has a very remarkable proceſs and protuberance which is partly received into a cavity of the ſhoulder-bone, and is called the elbow. The articulation of theſe bones in ſome ſenſe, reſembles the human elbow.

The interoſſei, or ſmall bones between the leg and the ſhank, are four in the upper row, and three in the lower. The middle bone of theſe laſt, receives the head of the ſhank, and the two outermoſt, the two ſplent or ſtay-bones. They are not all of the ſame ſhape or ſize, but differ from each other in this reſpect. They are not ſpungy, as ſome have aſſerted, but compact and ſolid, and they are all covered and tied together by membranous, and cartilaginous ligaments. The uſe of theſe bones is to ſtrengthen the knee, and to facilitate its motion. That bone which ſtands out of the rows ſerve for the inſertion of the two muſcles, and to determine their action to a ſtrait line.

The length of the leg-bone is about ſixteen inches, and that of the ſhank not more than eleven. There are three bones belonging to the ſhank, one large and two ſmall. Theſe laſt are ſhorter than the other, and are called ſplent or ſtay-bones. The largeſt of theſe bones, which is properly the ſhank, is joined by the ſuperior part to the middlemoſt of the three interoſſei or ſmall bones, and two ſplent-bones to the other two, one on each ſide. The lower part of the ſhank-bone receives the ſuperior part of the great paſtern, much in

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the ſame manner as the human ſhank is to the thigh-bone, that is, it receives and is received.

The nut or bridge-bone belongs to the ſhank-bone, and lies on its internal and inferior extremity. It has an eminence in the middle, which is received into the ſhank, and at the ſame time receives the external and internal condyles of that bone. It conſiſts of two parts, and may be divided in the middle.

The great paſtern-bone is about three inches and a half in length, and its upper extremity is much thicker and broader than the lower, that it may the better receive the inferior extremity of the ſhank-bone. Its lower extremity is received by its paſtern, and likewiſe receives the eminence in the middle of the ſame bone. The little paſtern is about two inches in length, and like the former bone, has its upper extremities larger than the lower. This laſt has an eminence which is received into the coffin bone, which likewiſe receives the creſt of this laſt bone.

The coffin bone gives a ſhape or form to the hoof, and reſembles a gorget. It has two depreſſions and an eminence in the middle, for its more convenient articulation with the little paſtern bone. There is an apophyſis on each ſide to keep out the quarters of the hoof, and to maintain its ſhape ſideways, while the body of this bone beſtows its figure on the fore part of the hoof. There are many ſmall grooves internally on the fore part of this bone, which ſerve for the inſertion of the fibres which compoſe the great tendon before; the uſe of which is to move the hoof or foot forward. But the back ſinew is inſerted in the hind part.

The explanation of Plate III. page 25. which contain the repreſentation of the bones of the fore legs, and of the hoof.

a, *a*, *a*, *a*. The four upper ſmall bones placed between the leg-bone, and the ſhank-bone.

b, *b*, *b*.

b, b, b. The three ſmall bones placed beneath the ſhank-bone.
C. The fore view of the ſhank or cannon-bone.
D. The back view of the ſame bone, to ſhew the ſplent bones on each ſide, marked *e. e.*
F. F. The two ſide views of the ſame bone.
c, c, c. The nut or bridge-bone.
G. The great paſtern-bone.
H. The little paſtern-bone.
I. The coffin-bone.
K. The fore view of the hoof.
L. L. The other views. See pages 30 and 31.

Of the MUSCLES *of the Fore-Leg taken from a Preparation of Mr.* Ingram's, *and by him deſcribed.*

From the inferior extremity of the ſhoulder-bone to the coffin-bone, there are ten muſcles which ſerve to perform the various motions of this limb. The firſt ariſes by a large fleſhy portion, a little above the joint of the ſhoulder-bone, with the leg-bone, and after the length of a ſpan begins to be tendinous; then deſcending on the fore part of the leg-bone, it becomes tendinous, and is inſerted by a broad flat tendon about half an inch below the joint into the ſhank-bone, and may be called *rector cruris.*

The ſecond is a ſmall muſcle ariſing from the inward part of the leg-bone, ſomewhat tendinous; and becoming ſmaller as it runs ſtrait along, is inſerted into the ſhank ſideways, a little in junction with the inferior bone of the ſeven. This muſcle directs the ſide motion.

The third is a large muſcle, and ariſes fleſhy from the inſide of the ſhoulder-bone near the former, and running along part of the elbow, goes to be inſerted by a ſtrong tendon, into that bone of the ſeven which ſtands out of the row. About an inch above its inſertion it ſends off a round tendon which paſſing

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over the bones of the knee, unites with the tendon of its antagoniſt muſcle. Then paſſes obliquely over the ſplent and cannon-bone, and is inſerted into the upper part of the great paſtern. Theſe muſcles ſerve to bend the leg and ſhank inward, and to put the great paſtern forwards.

The fourth muſcle is the antagoniſt of the former, and ariſes large and fleſhy from the outward part of the ſhoulder-bone, and deſcending nearly in a ſtrait line, is inſerted into the ſuperior and interior bone not far from the former muſcle. This ſerves to bend the leg inwards and to pull it upwards.

The fifth ariſes or has its origin near the middle of the leg-bone, and adheres cloſely to it. It is a membranous flat muſcle, and runs over and covers the ſeven bones of the knee. It ſends off a flattiſh tendon to be inſerted into the ſuperior part of the ſhank or cannon-bone. Its uſe is to tie the ſeven ſmall bones together, and by its tendon to give a ſide motion to the limb.

The ſixth muſcle riſes fleſhy and round on the ſide of the lower extremity of the ſhoulder-bone near the joint, and growing tendinous a little lower than the middle of the leg-bone, paſſes in a groove over the knee-joint to the middle of the great paſtern, where uniting with two other tendons, they form one broad large cord, which running over the little paſtern and under the hoof, is inſerted forward in the coffin-bone. The uſe of this muſcle is to pull forward and render the foot ſtrait: it is the antagoniſt of the back ſinew.

The ſeventh is a muſcle or rather a ſtrong broad tendon, which riſes from the interior extremity of the leg-bone, and running along the inward convexity of the ſhank-bone, between the ſplent-bones, is divided into two, near the middle, which paſs to each ſide of the bridge-bone, to faſten it in its place: afterwards it ſends off on each ſide a ſtrong tendon, which runs over the great paſtern-joint, and then goes to unite with the tendon of the laſt deſcribed muſcle, and helps

to form the broad tendon before, called the extenſor of the foot or hoof.

The eighth muſcle ariſes with broad fleſhy portions, partly from the inſide of the lower extremity of the ſhoulder-bone, and partly from the upper extremity of the leg-bone, whence running over the whole length of the leg-bone it becomes tendinous near its joint, and paſſing downwards over the ſeven bones to the middle of the ſhank-bone, it is united to another tendon.

The ninth muſcle, or rather membranous and tendinous expanſion, ariſes from the inferior part of the leg-bone, and paſſing along not only covers the ſeven bones of the knee, but ſerves as ligaments to tie them together inwardly, and then proceeds downward to unite with the former tendon. Being thus united they form one great chord which is encloſed in a ſheath, and paſſing downwards run over the nut-bone, which ſerves as a bridge to direct its courſe, and is faſtened to it by an annular ligament, under which it moves. Then it runs over the great paſtern-bone to the little paſtern, where it ſends off a tendinous expanſion on each ſide from its external part, which ſerve to tie together and ſecure the joint. The tendon itſelf proceeds downwards, to be inſerted into the coffin-bone, where expanding itſelf again, it covers almoſt all the interior part of that bone, and forms the inward ſole.

The tenth muſcle ariſes from the elbow of the leg-bone, and continues fleſhy to the length of a ſpan, when becoming tendinous, it runs near the joint of the knee, and joins the former tendon, helping to form the great chord, which bears ſome reſemblance to the tendo achilles in men. The two muſcles with the tendons bend the leg, ſhank, both paſterns and foot, inward, at the ſame inſtant of time. See pages 36 and 37.

N. B. The numbers 1, 2, 3, 4, &c. in the plate of the muſcles of the foot refer to the ſame numbers of the

the muſcle, in this deſcription of them. *See plate* IV. p. 36.

Of the Hoof.

The Hoof is a horny part in ſhape like a gorget, incloſing the ſoft part of the foot, and receiving others ſubſervient to motion, like a box-caſe or coffin; and it ſurrounds the whole in ſuch a manner as will beſt defend it from external injuries. Its texture is like horn, ſofter than a bone and harder than a griſtle. It is compoſed of various ſpiral fibres which interſect each other croſsways, which forming thin laminæ or plates, are laid one upon another. It is ſenſible of pain, and therefore very proper for the purpoſe for which it is deſigned. In all countries where the roads are rough, they faſten iron ſhoes to this part with nails, but in ſome parts of North America, they never ſhoe their horſes at all, becauſe the ſoil is looſe and ſandy. The hoof is near a quarter of an inch thick, and yet the heels are more firm, hard, and thick than the hoof, they being ordained to ſupport and ſtrengthen the quarters.

The quarters are a continuation of the heels, and running up to the fruſh, form the ſuperior edge of the coffin; they are ſupported inwardly on each ſide by two prominent cartilages. All theſe contribute to the ſtrength of the foot, and enable the horſe to tread ſecurely on his toe and the ball of his foot. Now as the heels are the ſupport as well as a part of the quarters, they ſhould never be pared down, becauſe it not only weakens them, but brings the quarters flat to the ground, and conſequently brings the foot into a new poſition, ſtraining the inward tendons which are inſerted in the coffin bone, and throwing the toe upwards, which muſt needs be painful to the horſe. Beſides, as the heels are hard and bony, the ſhoes ſhould never come near them, much leſs lie on them, becauſe they

are ſtrong enough to ſupport themſelves, without any artificial addition. Add to this, that they are farther ſupported and ſtrengthened by two bone-like ſtays or props, which ariſe from each ſide of the frog, running up and joining the heels, and theſe are defended externally by the outward ſoal or rift of the foot, under which they lie. Now as the quarters of the foot are compoſed of theſe ſtays and heels, the paring away of theſe laſt will certainly weaken the ſtays, quarters and inward cartilages, and impair the chief ſupport of the body.

The horny ſole or rift lies at the bottom of the foot, and is of a much ſofter conſiſtence than the hoof. It extends from the toe to the ſuperior extremities of the ſtay bones, and is joined almoſt all round to the hoof. Its uſe is to defend the external and internal ſoles, as well as the contents of the coffin from nails, glaſs, and the like, that they may not wound the more ſenſible parts. Therefore it muſt needs be a fault in ſmiths when they ſhoe horſes, to pare away too much of this rift, becauſe the outward ſole is thereby the more expoſed to the external injuries, and the horſe is rendered tender footed.

The internal ſole is much more firm and compact than the rift, and whenever this is laid naked wholly or in part, the foot is very apt to receive wounds or bruiſes; for the ſhield of the bottom of the foot being removed, it will be no longer able to reſiſt the impreſſion of hard bodies, ſuch as ſmall ſtones and the like. Thus when a horſe has caſt his ſhoe, it cauſes him to limp immediately. Hence likewiſe may proceed an inflammation and ſuppuration of the parts within the coffin; for moſt diſorders of this kind proceed from external injuries.

The frog is a ſpungy flexible elaſtic ſubſtance, of a much ſofter nature than the parts already deſcribed. It begins with a point about an inch and an half from the toe, near the center of the foot; and then enlarg-

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ing, extends itſelf above the bony heel where it aſſumes the name of the fruſh. On each ſide of the heel there is a cartilaginous ligament detached from the fruſh, which extends all round the upper part of the hoof, being the continuation of the frog, and is called the coronary ligament. The ſkin of the leg is inſerted between the ligament and the hoof, and joins the hoof to the foot or coffin-bone. The uſe of the frog is to keep the heels open to defend the foot and internal ſole from bruiſes, by its elaſtic and flexible ſubſtance, for by theſe properties it yields to the preſſure of external bodies, and returns to its former ſtate immediately. Hence it appears, that the paring away the upper part of the frog will impair its firmneſs and ſtability, will occaſion wire heels, and promote the diſorder called the fruſh, as well as looſen the hoof where it is joined to the ſkin of the leg. When the frog is almoſt deſtroyed, it will be eaſily penetrated by ſharp bodies and be more liable to be bruiſed by thoſe which are hard and blunt.

In the coffin-box or caſe, which is the inſide of the hoof, we obſerve its coronary convexity, its enchannelled fibres, and the creſt like the comb of a cock; beſides three eminences, two furrows, &c. All which are parts of the ſtructure of the coffin. This likewiſe contains the coffin-bone, part of the coronary or little paſtern, the extremities of the tendons which bend the foot backwards and extend it forward, with the two cartilages, the veins, glands and membranes.

The coronary groove is a concave channel, in the inſide of the hoof, and runs round it to the fruſh. Its uſe is to contain the enchannelled fleſh for the inſertion of the ſkin, to receive the glands, and to facilitate the motion of the foot, as well as to prevent the tendon before from being bruiſed in its action. Againſt the hard edge of the groove a great many ſmall fibres run, and there is a ſtrait line down to the toe, or inferior edge of the hoof. From the membranes of the bones

between the ſides, others run of a more fleſhy nature, which help to unite the hoof with the coffin-bone, while the arteries and veins convey nouriſhment for the ſupport and growth of the hoof.

The creſt or cock's-comb in the center of the coffin, is received into a groove of the coffin-bone, and ſerves to prevent the ſhaking of that bone in the coffin, during the motion of the foot.

Some uſeful Obſervations on SHOEING.

THOUGH ſhoeing of horſes is in general eſteemed a matter of very little concern, yet in itſelf it is the moſt important operation in farriery, as on this entirely depends the ſafety of the rider; and indeed I am apt to believe that more horſes are thrown down and lamed by falling into the hands of ignorant ſmiths, than by all, or every other misfortune whatever, as an error in this point, tho' it may not immediately appear, will in the end entirely lame the horſe. I am thoroughly perſuaded, within the circle of my own practice, that five out of ſix of the horſes with bad feet, are not naturally ſo, but rendered ſo by the unſkilful method of ſhoeing. I would therefore recommend, in order to prevent horſes ſlipping on a dry pavement, that a half-moon ſhoe be uſed, that is, a ſhoe which only ſurrounds the toe, and which, the ſhoe-heel gradually diminiſhing, reaches not farther than the middle of the quarters; ſo that the frog and the heel may preſs at the ſame time upon the ground, as well the fore-part as the hind; but eſpecially the fore-part, becauſe the weight of the horſe preſſes moſt there; and the ſhorter the ſhoe is, the leſs liable the horſe will be to ſlip, the frog producing the ſame effect that an old piece of hat would do under our ſhoes upon ice. But in weak hoofs I would recommend

mend that the ſhoes be a little longer, ſo that the ſhoe-heel growing thinner upon the heel, the end of it may not bear upon the hoof; which being weak in itſelf, would be deſtroyed thereby, to prevent which, the end of the ſhoe ſhould terminate on the thick part of the heel.

Shoes longer than ordinary are neceſſary for feet which are filled up; they ſhould beſides cover the ſole, to prevent it from bearing upon the ground. The ſhoe muſt be placed on in ſuch a manner, as not to bear upon the ſole; the frog and heels ſhould always touch the ground, it is the ſure and only way not only to preſerve, but likewiſe to re-eſtabliſh the feet when injured. A horſe that has tender and weak heels, ought to be ſhod as ſhort as poſſible, and with thin ſhoe-heels, ſo that the frog may touch the ground; for the heels having nothing under them, will be much eaſed.

The half-moon ſhoe is very neceſſary for horſes with weak quarters, as it not only eaſes them, but will ſometimes reſtore them to their natural ſtate. Horſes with tumours in the feet and friſſures in the quarters, ſhould be ſhod in this manner. Neither the ſole nor frog ſhould be pared; but if the hoof be judged too high, it may be taken down. If a horſe cuts, the inner part of the ſhoe ſhould be thinner than the outer part; for by this means the horſe will over-reach leſs. It is neceſſary to ſhoe flat feet with ſhoes of this kind, and eſpecially ſuch horſes whoſe feet are like an oyſter-ſhell.

All flat-footed horſes have low heels, and conſequently weak ones; but nature, in order to ſupply this defect, has commonly given them large frogs to preſerve their heels: therefore their feet ſhould never be pared, nor their heels hollowed or ſcraped, which are very prejudicial, and often totally deſtroy their feet. The firſt bad conſequence in hollowing their feet, is the deſtruction of the horny ſole, which ſerves

to prevent the heel and quarters from contracting. The ſecond abuſe in ſcraping the feet is weakening the hoof; and conſequently cauſing the horny ſole to grow dry and impoveriſhing the fleſhy ſole, and very often it cauſes an inflammation within-ſide, rendering the foot painful, which cauſes lameneſs. The more a horſe's foot is pared, the more accidents he is ſubject to, as it deprives him of that defence nature has given him againſt the hard and ſharp bodies he generally meets with in his way; and the moſt material article for the horſe and rider is, that in not paring the ſole, and in not giving him more ſhoe than is neceſſary to preſerve the ſole, he will be leſs ſubject to ſlip upon hard roads in winter, or ſlippery roads in the ſummer, as I ſhall immediately ſhew:

Firſt then, making him walk upon the frog, and in part upon the heel, this being greatly rubbed and worn to the ground, it ſinks by the weight of his body, into the little interſtices or cavities he meets with in his way.

And ſecondly, by its flexibility it takes a certain impreſſion and ſhape; ſo that the foot will bear upon ſeveral parts; which eaſe one another by multiplying the parts of its ſupport, and gives the animal a firmer hold on the ground he treads upon. It is thought that ſtrong ſhoe heels are of uſe to weak heels, and that the iron yields, and preſſes upon the heel: in this conception they raiſe the ſhoe heel, and leave a void ſpace between it and the heel. The contrary however happens. It is the hoof by its flexibility that follows the ſhoe heel which never gives way. The thicker the ſhoe heel is, the ſooner the heel meets it, and the heel inſtead of being relieved is compreſſed thereby.

It is an eſtabliſhed fact that a horſe ſeldom goes at his eaſe, and ſooner tires if his frog does not bear upon the ground, which is the only point of ſupport to the tendon; but if you keep it from the ground

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by paring it, a ſtraining of the tendon will follow, occaſioned by the thruſting of the coronary bone upon the nut bone; which being repeated every time the horſe ſteps, it thereby fatigues him and cauſes an inflammation in the parts. I have been often ſurpriſed that this new method invented by La Foſſe has not been more univerſally adopted. Some indeed of the farriers have diveſted themſelves of their prejudices againſt this method, and have been taught by experience to agree with me, that a ſhort ſhoe with thin ſhoe-heels is right and uſeful. Many indeed have acknowledged its utility, but will not practiſe it, though they give no reaſons for not uſing it. Others who think in this way, do uſe it for horſes that have low and tender heels, and for ſuch that have flat or weak feet. And by it have ſucceeded ſo far as to recover their horſes, it is clear by their manner, that they acknowledge the ſuperiority of this method, and that they are convinced that the old one would not be able to operate the effect that the new one produces: why therefore do not they adopt it for ſound feet, as it would be very uſeful in preventing a number of accidents, and experience proves the truth of it? It is that they are obſtinate, and only uſe this method when neceſſity obliges them, and keep their old mode through prejudice, conceit and ignorance.

APPENDIX.

THERE having lately been an epidemical diſtemper among the horſes, I have been told it was expected, that ſomething more ſhould be ſaid, relating to the nature and cure thereof. All diſeaſes of this kind, are undoubtedly owing to the air, and to the pre-diſpoſition of any animal to receive its bad impreſſions. There's no animal upon earth ſubject to ſuch a variety of diſorders as a horſe; for cows, ſheep, hogs, and even the canine ſpecies, are afflicted but with few maladies, in compariſon of horſes. The common diſeaſes of brute animals in general, chiefly ariſe from the plenty of the ſtagnation and extravaſation of the blood and humours, and from the ſuppuration and corruption of the viſcera; but as for thoſe that return at ſtated ſeaſons, and are owing to a particular diſpoſition of the air, they require a more particular conſideration, and their cauſes may be ſought for, in the excretions and ſecretions, as well as in the particular diſpoſition of the heavens.

It is very plain that all adult animals, eſpecially thoſe that are accuſtomed to labour and exerciſe, take in a large quantity of aliment, and yet their bodies are very ſeldom much heavier; hence it follows, that the excretions ought to be in proportion, to what is taken into the body. This we learn from experience, and the laws laid down by Sanctorius, relating to inſenſible perſpiration; for by theſe we are taught, that the operations of the mind, and the actions of the body, are always moſt regular and eaſy, when the excretions correſpond with the quantity of aliment taken in. Its therefore of the higheſt moment to our enquiry into

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the nature of diſeaſes, to have a right notion of the nature of all kinds of excretions.

In the ſtructure of an animal body there are a vaſt number of organs that are like ſo many machines, by whoſe help digeſtion, chylification, and ſanguification are performed, and the ſuperfluous matter carried off by the ſeveral glands and emunctories of the body. Thus therefore when the excretions are regular, all the functions continue ſound and entire; becauſe they carry off almoſt continually whatever is hurtful to the body, and apt to clog the mind. Hence it follows, that diſeaſes are beſt prevented by keeping up a due perſpiration, and by promoting all the neceſſary excretions and ſecretions, and eſpecially that of the inteſtinal canal. It may ſeem ſtrange to ſome, but yet 'tis certainly true, that perſpiration exceeds all the other ſecretions put together; and next to this is that by ſtool. The former carries off the moſt ſubtle matter, and conſequently moſt liable to be prejudicial; and the latter that which is moſt groſs, and of too coarſe a ſubſtance to enter the lacteal veſſels. It is a trite obſervation, that thoſe whoſe bodies are generally open are liable to feweſt diſeaſes; while on the contrary, thoſe that are coſtive often ſtruggle with a great variety. We find by certain experience, that when the paſſage is not open that way, there is an inflation about the precordia, tenſive pains in the abdomen, heavineſs of the body, pains in the head, beſides a great quantity of wind. Likewiſe when perſpiration is diminiſhed, the ſalt and fine fluids are carried to the head and breaſt, and injure other parts of the body, by leſſening the circulation of the blood and humours, and by bringing on a languor and laſſitude; with a heavineſs of the head, a dulneſs of the mind, a running of the noſe, and a violent cough. This is very often the caſe, and more eſpecially in thoſe ſeaſons of the year when there are ſudden changes of the weather, particularly when they are extreme. Hence it appears,

that

that when all evacuations, are in a natural ſtate, they are attended with health; and when they are diminiſhed or deficient, they become pernicious and noxious; and when there's a ſtoppage of more emunctories than one, the diſeaſe becomes more violent. Indeed it often happens, that the diminution of one ſecretion, is compenſated with the increaſe of another; thus when the pores of the body are cloſed up with ſudden cold, ſo as to cauſe a ſtoppage of perſpiration, all bad conſequences may be prevented, by the matter of it being carried off by the groſſer emunctories. Thus likewiſe when a great quantity of matter is carried off by the lungs, the belly is commonly more ſlow; therefore this rule may be ſuggeſted, that the method of remedying, the loſs of one ſecretion, is by the increaſe of another. Thus a flux of the belly may be reſtrained by increaſing the perſpiration; and likewiſe perſpiration may be leſſened by keeping the body open. It is likewiſe very certain, that no fever, or any other grievous diſorder, afflicts the body, unleſs preceded by coſtiveneſs, or a check of inſenſible perſpiration.

It is very plain that a defect of any of the natural excretions will clog the body with plenty of impure humours; and therefore no intelligent practitioner, will ever check any of them, much leſs reſtrain them; but rather keep them up in a moderate degree; likewiſe when this is done, at the very beginning of any diſeaſe, it is the only way not only to ſtop its progreſs, but to ſave the life of the animal: hence likewiſe it is plain, that no diſeaſe can be cured till the natural ſecretions are reſtored.

Almoſt every one is ſenſible, what influence the air and weather have upon an animal body; for when the ſky is ſerene, pure and temperate, with ſalutary breezes, we find an unuſual vigour both in body and mind, attended with chearfulneſs, and aptneſs for action; but on the contrary, when the ſky is clouded, gloomy, rainy, and attended with moiſt winds, the body is not only

only languid and feeble, but the wit is dull, and we are affected with ſadneſs, without any other cauſe. Some have been obſerved to be heavy and dull, and to be ſcarce able to ſleep, when the quickſilver in the barometer has been very low; whereas when it riſes again, their uſual ſtrength and vigour have returned therewith.

There are two kinds of air, which are neceſſary to keep the body in perfect health; the one is internal, which reſides in the fluids, and in all parts of the body; the other is external, which ſurrounds the body, and which, by its ſpring and expanſive virtue, acts very ſtrongly both upon the ſolids and fluids; for by its gravity and preſſure, it hinders too great an expanſion of the elaſtick internal air, and keeps it in equilibrium: Thus we ſee in a thermometer, that the fluid will ſometimes expand itſelf, and take up a greater ſpace, by the means of heat, and that it will be condenſed, and take up leſs room when the ſurrounding air is cold. We cannot wonder how air ſhould enter the body, ſince we can't but know, it is intimately mixt with all our aliments, and even in water itſelf; as may eaſily be ſeen, by putting any of them into an air pump.

Perhaps it may be ſaid, that the air never enters the blood when inſpired through the lungs, which we may allow to be true; and yet it can't be denied, but that great plenty of the ætherial fluid, may paſs that way; ſince we find by experience, that it will readily paſs through glaſs; for otherwiſe it cou'd not expand the fluid in a thermometer. Hence it is plain, that the air and æther may act in two different manners; for it may not only be mixed with the fineſt fluids, and by its expanſive virtue add ſtrength and firmneſs to the elaſtick fibres; but it may enter the groſſer humours, and aſſiſt the expanſion of the veſſels. Thus this expanſive virtue of the air intimately mixes and agitates the vital fluids, and alſo increaſes perſpiration, while the external

external air ſerves to repreſs a too great expanſion of the veſſels, the rarefaction and evaporation of the fluids. Hence it appears, that the vital and more moderate circulation and perſpiration of the fluids conſiſts in the preſerving them the equilibrium and due proportion between the internal and external air.

Since the whole body conſiſts of a vaſt number of tubes, veſſels, and pores, through which the blood and humours are continually paſſing, it is no wonder that a great quantity of extremely fine corpuſcles, of a watery, ſulphureous and ſaltiſh nature, ſhould be continually flying off in the form of a vapour; and likewiſe, that thoſe that are the moſt rigorous and healthy, ſhould perſpire more than others. Beſides, thoſe who have a regular perſpiration, always enjoy the beſt health, becauſe by that means the fluids are freed from all noxious particles, and conſequently there is little danger of being attacked by any conſiderable diſeaſe; for, as we obſerved before, moſt diſorders of the body ariſe from a want of due excretions, and from locking up in the body thoſe particles that ought to be ſent off that way. It is likewiſe found by obſervation, that in the ſummer months, when perſpiration is greateſt, there are the feweſt diſeaſes, and very few animals of any kind die; and hence it happens, that in thoſe ſeaſons of the year, when the weather is moſt changeable, all ſorts of maladies are moſt frequent, and it is then that epidemical colds and fevers are moſt frequent among horſes, tho' they return at no certain periods, which are ſometimes much more fatal than others.

We are informed by hiſtories, that there have been fatal diſtempers among horſes, called murrains, which anſwer exactly to the plague among mankind; but of theſe we have had no inſtances for many years. However, we frequently find, that they are ſubject to epidemical fevers and colds, which have been more or leſs fatal, according to the nature of the diſeaſe itſelf, or the ſkill of thoſe that have attempted to cure them. Theſe

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generally become infectious; and if one horſe in a ſtable is afflicted with them, the reſt are almoſt ſure to be affected in the like manner. But it is not to infection only that the increaſe of theſe diſeaſes is owing; for we ſometimes find, that it will run thro' a whole nation in a very ſhort time, and therefore the cauſe muſt be more general; and more than once it has been known to run throughout all Europe in the ſpace of a month.

From what has been ſaid it is evident, that the only method of curing any diſtemper among horſes, is to take it in time, and to ſupply the want of one ſecretion by the increaſe of another, and likewiſe to reſtore that which has been diminiſhed as ſoon as poſſible. Thus, in the late epidemical diſeaſe under our preſent conſideration, it is always neceſſary to take away blood in proportion to the vehemence of the ſymptoms, to keep the body open, and to give ſuch medicines as are more particularly appropriated to the relieving of coughs. The reigning diſorder is attended with ſwellings of the parotid glands and of the other kernels about the throat, and is attended with a profuſe running at the noſe, and ſometimes a flux of the ſame matter from the mouth, which is always the more dangerous, the more it is diſcoloured. We do not find there has been any ſtrong fever attending in it, and when this is abſent, it may be cured as a common cold, by keeping the head and neck warm, and by promoting the perſpiration of thoſe parts. This alſo may be aſſiſted by clothing the reſt of the body; and tho' the ſtable ſhould be warm, yet it ſhould not be ſo cloſe, that no freſh air can enter; for then the horſe will be obliged to breathe his own atmoſphere; and it is well known there is nothing more prejudicial to health, than the breathing of animal ſteams. This many among mankind have found to their coſt; for when they have been ſhut up in a hot room, with the curtains drawn cloſe about them,

them, they have too frequently loſt their lives; whereas a more moderate regimen and the admiſſion of freſh air might have preſerved them.

It will always be ſafeſt to bleed a horſe plentifully at firſt, eſpecially if they are feveriſh and ſhort breathed; for when the veſſels are emptied, the noſe will ſooner be brought to run; and this always anſwers the ſame purpoſe as expectoration in men. If the body is coſtive, it ſhould always be kept open by emollient glyſters, and this will ever greatly contribute to the cure. For drink, he ſhould have a maſh, made with bran and flour of brimſtone, to heal the lungs, and to promote perſpiration. As ſoon as they begin to cough, the following powder has been found beneficial.

Take half a dram of ſaffron, a dram of caſtor, and an ounce of ſaltpetre; which being reduced to powder, muſt be mixed with a pint of mountain wine, which muſt be given to the horſe for a doſe, and repeated morning and night, as long as the ſymptoms are urgent. The maſh may be mended, if a decoction of two ounces of coltsfoot be mixed therewith, or rather, if this decoction be made the baſis of the maſh. As for what elſe remains to be ſaid, the chapter of contagious diſtempers, epidemical fevers, and obſtinate coughs may be conſulted.

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